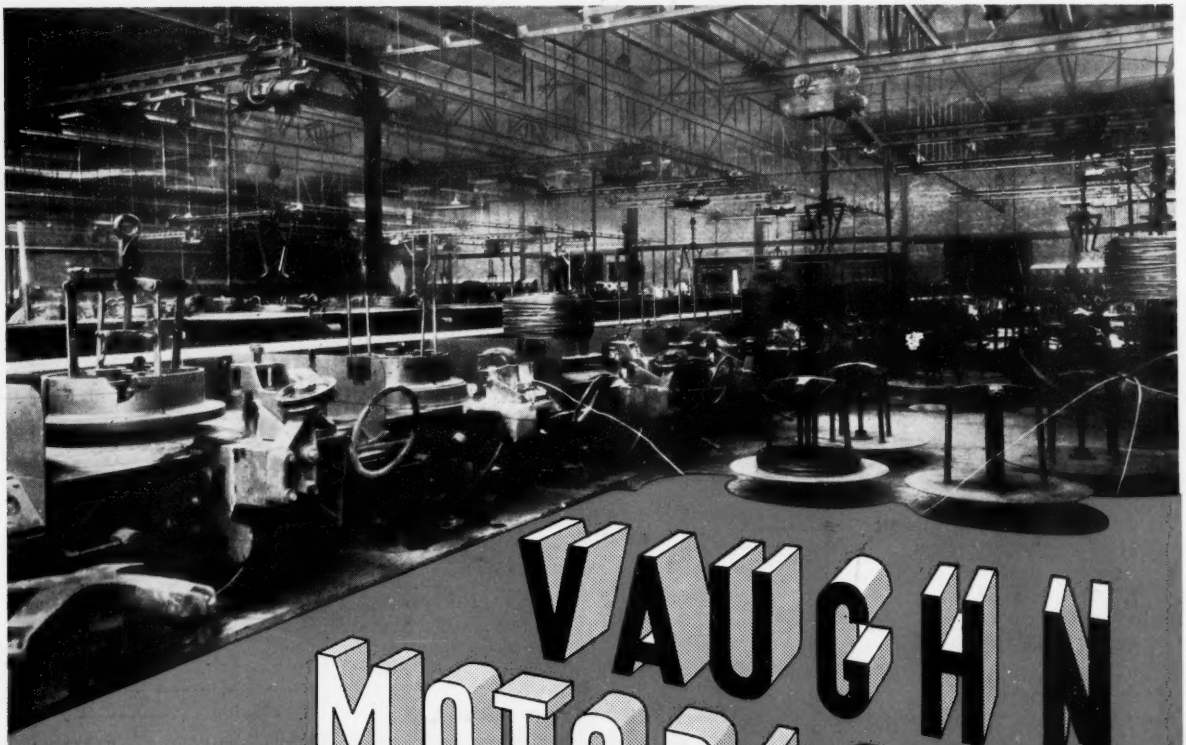
WIRE & WIRE PRODUCTS

OFFICIAL PUBLICATION OF THE WIRE ASSOCIATION



VAUGHN MOTOBLOCS

WIRE manufacturers, like all other manufacturers, are today making a determined effort to develop new markets and new uses for their products, - all of which entails the drawing of many new sizes and types of wire.

In Motobloc equipped plants, - no additional machine investment is necessary to cope with this situation, Motoblocs can handle numerous sizes and types without change, while their speed flexibility enables them to produce efficiently over a wide range. Motoblocs are a safe and profitable investment any time.

The Vaughn Machinery Company . . Cuyahoga Falls, Ohio

EXPORT OFFICE: 420 Lexington Ave., New York City

March 1932

THE WIRE ASSOCIATION
1932
MEETING and EXHIBITION

Will Be Held at Buffalo, N. Y.

October 3, 4, 5, 6, 7 (incl.), 1932

IN ASSOCIATION WITH THE

NATIONAL METAL CONGRESS AND NATIONAL METAL EXPOSITION

▲ ▲ ▲

The Societies Participating Will Be

American Welding Society
Institute of Metals Division, A. I. M. E.

▲ ▲ ▲

Iron & Steel Division, A. I. M. E.
Iron & Steel Division, A. S. M. E.
Wire Association

▲ ▲ ▲

Production Activity, S. A. E.
American Society for Steel Treating

▲ ▲ ▲

Wire Association Technical Meetings

A diversified program of papers prepared and delivered by experts—plant operators, engineers and executives from all divisions of the wire industry will be presented on October 4, 5, 6 and 7. There will be separate sessions relating to the production of steel rod and wire; the production of non-ferrous rod and wire; the manufacture of covered wire and cable and the fabrication of wire products. An open discussion will be held on all papers presented. Members are invited to send suggestions for subjects to the Program Committee.

Ralph K. Clifford, Gen'l Supt., Continental Steel Corp., Kokomo, Ind., Chairman; Kenneth B. Lewis, Morgan Construction Co., Worcester, Mass.; W. D. Pierson, Secy. Waterbury Farrel Fdry. & Machine Co., Waterbury Conn.; R. E. Brown, Secretary, The Wire Association, R. E. Brown, 551 Fifth Ave., New York, N. Y.

EXPOSITION SPACE COSTS

The cost of space at National Metal Exposition is based at the rate of $1.00 per square foot, on spaces 10 x 20 or larger; $1.25 per square foot for spaces 10 x 10. A small additional charge for corner locations. These charges include complete booth construction, firm signs, general lighting, complete janitor and watchman service.

YOU ARE INVITED
TO JOIN THE
WIRE ASSOCIATION

THE EXHIBITS

The types of products that will be represented at the Exposition are entirely too numerous to list here. Among them, however, will be exhibits of raw, semi-finished and finished products; alloys; stainless steels, brass, bronze, copper and bearing metals. The latest supplies and equipment for heat-treating with gas, electricity and oil will be shown in actual operation. Welding and cutting apparatus, machinery and accessories will be exhibited. Inspection and testing equipment, forgings, **insulating materials, wire, wire products, wire drawing equipment and accessories,** precision tools and instruments, refractories, abrasives, rust-proofing compounds, and many other products, processes and methods will be shown.

DETAILED INFORMATION FURNISHED ON REQUEST.

The Wire Association

551 5th AVENUE **ROOM 321** **NEW YORK, N. Y.**

Sleeper & Hartley
TRADE MARK
REG. U.S. PAT. OFF. & PRINCIPAL FOREIGN COUNTRIES.

Sleeper & Hartley
TRADE MARK
REG. U.S. PAT. OFF. & PRINCIPAL FOREIGN COUNTRIES.

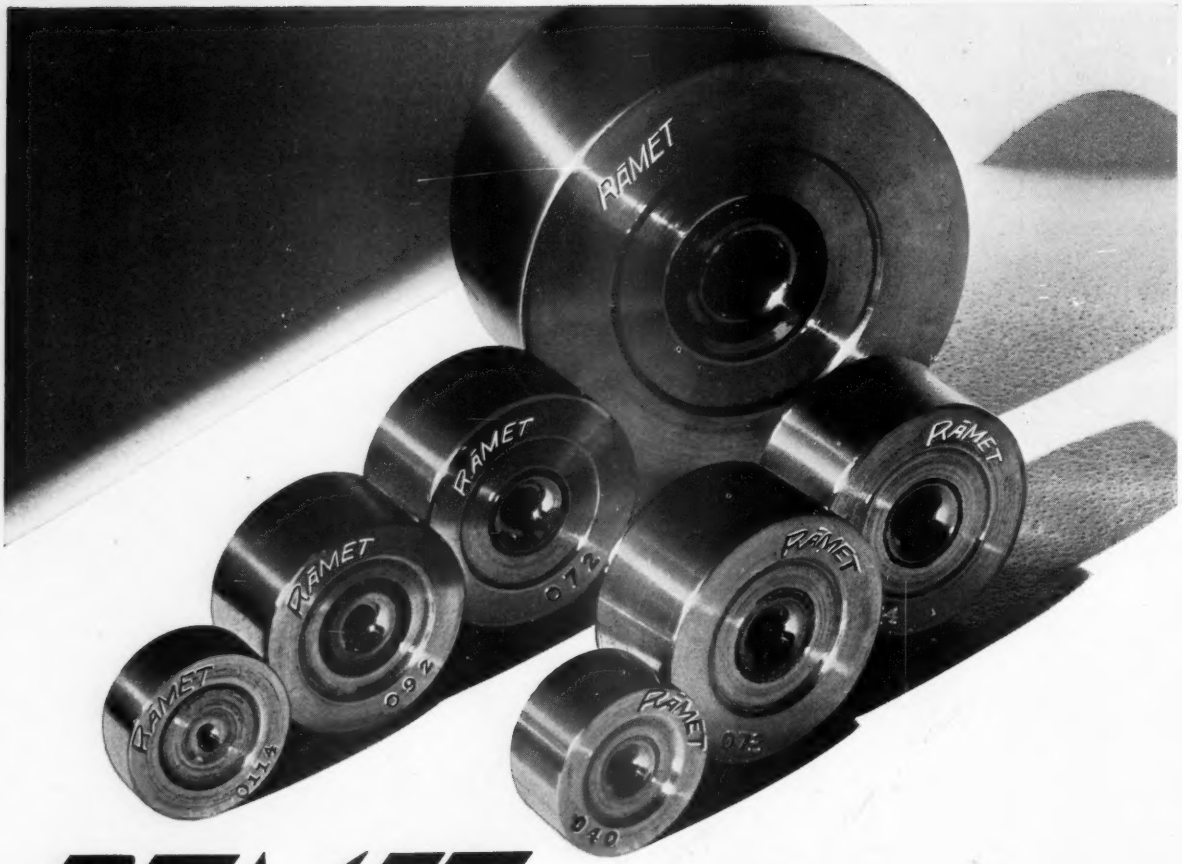
SINGLE HOLE
AND
CONTINUOUS

WIRE DRAWING EQUIPMENT

SLEEPER & HARTLEY, INC.

WORCESTER, MASS., U. S. A.

DESIGNERS & BUILDERS OF PRODUCTION WIRE MILL MACHINERY



RĀMET

TRADE MARK REG. U. S. PAT. OFF.

TANTALUM CARBIDE WIRE DIES

Rāmet, the original Tantalum Carbide Alloy, brings many exclusive advantages to wire die operation. Rāmet is hard — rivalling the diamond; it is non-porous in its structure; it has a low coefficient of friction; it takes and holds an unusually good polish.

These characteristics and the fact that Rāmet is proof against the acid lubricants common to wire drawing work, account for the remarkable performance of Rāmet dies. Longer die life, lighter drawing loads, and better wire finish are proved advantages of Rāmet.

Rāmet, the original Tantalum Carbide Alloy, was developed after long, scientific research by a famous producer of rare metals. The entire manufacture of Rāmet dies from ore to the finished product is under the supervision of a trained staff — experienced not only in rare metals refining but in wire drawing operations as well.

Try Rāmet dies on your own work. Write for complete information on Rāmet dies and their production advantages.

DIAMOND DIE COMPANY OF AMERICA

254 West 31st Street, New York, N. Y.

Western Office: 6504 West 26th Street, Berwyn, Illinois

W & WP3 Gray

WIRE & WIRE PRODUCTS

A monthly publication devoted to the production of Wire, Rod and Strip. Wire Products and Insulated Wire and Cable.

DRAWING — ROLLING — EXTRUDING — FORMING — FABRICATING.

Vol. 7 March 1932 No. 3

Official Publication of The Wire Association

Contents

Safety Practices Increase

Rod Mill Efficiency, Part I. .....By R. H. Ferguson 73
Suggested Practices for Accident Prevention in Rod Mills—Some Ideas which will Reduce the Accident Hazard and Increase the Safety Factor in Rod Production. Part II Will Appear in April.

Some Electric Furnace Developments in 1931 .....By C. L. Ipsen 78
A Condensed Description of Improvements in Electric Furnaces During 1931 for Annealing Coil Strip, for Sheet Annealing and for Copper Brazing as Developed by the General Electric Company.

Radio Coil Impregnation .....By B. F. Reimers 80
Bitumens of Various Kinds are Employed to Impregnate Copper Wire Coils for Electrical Apparatus. A Unique Method of Impregnation Developed by the Cornish Wire Co., is Described Here

Research in Pickling and Hot Galvanizing 94

Outstanding Personalities of the Wire Industry 81

'Round the World With the Wire Industry 82-83

Wire Questions and Answers 86-87
Question No. 1210—Hand Protectors
Question No. 1211—Die Lubrication.

A Review of Recent Wire Patents 88

Exports and Imports of Wire 89

New Wire Galvanizing Flux 96

—ASSOCIATE EDITORS—
Kenneth B. Lewis
W. H. Spowers, Jr., Consultant on Galvanizing
L. D. Granger, Chief Metallurgist, Wickwire Spencer Steel Corp.
Lancaster, Allwine & Rommel, Consultants on Patent Information
European Correspondents

Great Britain
A. C. Blackall
7 Vincent Sq. Mansions
London, S. W. 1, Eng.

Germany & Belgium
Paul Fidrmuc
Chapeaurougeweg 15
Hamburg, Ger.

R. E. Brown, Business Manager
Executive and Editorial Offices:
551 Fifth Avenue, New York City. Telephone: Murray Hill 2-4188

Publication Office: Washington, N. J.
Annual Subscription, U. S. and Canada $5.00
50 Cents a Copy Issued Monthly Foreign, $7.50

Copyright, 1932

The
Wire Association
1932
Meeting
and Exhibition
Will be held at
Buffalo, New York
During the week of
October 3, 1932
In association
with the
Annual
National
Metal
Congress

▼ ▼ ▼

Wire Association Headquarters will be at the Hotel Statler and the Exposition at the 174th Regiment Armory

▼ ▼

A Limited Amount of Space will be Available for Exhibitors in the Wire Association Section -- At Much Lower Cost Than Heretofore.

▼ ▼ ▼

For Information Address
Richard E. Brown, Secretary
THE WIRE ASSOCIATION
551 5th Ave., New York, N. Y.

WIRE & WIRE PRODUCTS, Vol. 7, No. 3, March, 1932. Executive office, 551 Fifth Avenue, New York, N. Y. Published by the Quinn-Brown Publishing Corp., Richard E. Brown, President; R. S. Spengel, Secretary and Treasurer. Publication office, 49 E. Washington Ave., Washington, N. J. Subscription price: U. S. and Canada, $5.00 per year, 50 cents per copy; Foreign, $7.50 per year. Entered as second class mail at the Post Office, Washington, N. J., under Act of March, 1879.

Copyright, 1932, by Quinn-Brown Publishing Corp.

DIAMOND DIES
UNWIDIA
UN-WIDIA DIES

EVERY UN-WIDIA DIE IS CUSTOM BUILT AND SERVICED BY EXPERTS

Only the finest quality Tungsten Carbide manufactured by the Krupp Company and sold under the trade name "WIDIA" is used. Tungsten carbide dies sold under the trade name "UN-WIDIA" are manufactured and sold exclusively by the

UNION WIRE DIE CORPORATION

NEW YORK

FACTORIES AT

New York Pittsburgh Chicago Hamilton, Ont. Paris

WIRE & WIRE PRODUCTS

A monthly publication devoted to the production of Wire, Rod and Strip.
Wire Products and Insulated Wire and Cable.
DRAWING — ROLLING — EXTRUDING — FORMING — FABRICATING

Vol. 7 MARCH, 1932 No. 3

Safety Practices Increase Rod Mill Efficiency

By R. H. Ferguson, Safety Engineer
National Safety Council

Suggested Practices for Accident Prevention in Rod Mills * * * Some Ideas which will Reduce the Accident Hazard and Increase the Safety Factor in Rod Production. Part I. ▼ ▼

IT has not been so many years ago that accidents and personal injuries to workers were considered inevitable and must be tolerated as part of the risks of a particular job. Today, however, farseeing management realizes, that while there is an injury now and then which might be classed in the "inevitable group," that in the majority of cases accidents are a needless cost which must be charged against operating expenses. There are some of course who will not agree with such a statement and to those few we suggest that they study their accident experience — particularly the cost of those injuries, to determine the sum which has been paid out in cold hard cash. Surely they will agree that such costs must be charged against the product and in times such as these, every attention should be given to reducing or eliminating the cause of this waste.

But how can this cost of accidents be reduced? How can these charges be minimized and at least kept within a reasonable ratio? Undoubtedly the answer is by thoroughly training the personnel in the mill in the safe practices of doing a particular job—which of course is the efficient way of carrying on the work.

✦ ✦ ✦

Reducing Accident Costs

PROBABLY the most efficient way to develop these safe practices in the mill is to analyze the work step by step and then to formulate approved methods of carrying on the job. It is the purpose of this short article to discuss some of these methods of overcoming hazards. Or course an article could be written on almost any one of the subdivisions of this subject and consequently in these few words we cannot hope to cover in detail many of the things which may come to your mind. Many of the practices suggested in this article are and have been enforced in many rod mills throughout the country for several years. It is taken for granted that organized accident prevention work is already being carried on in your mill and consequently these suggested practices will deal only in a general way with the work of manufacturing rods.

Figure 1. A cold rolled steel foot protector, made by a member of the National Safety Council for their own use. This type of protection has reduced foot injuries considerably in handling billets. ✦ ✦ ✦ ✦ ✦ ✦

✦ ✦ ✦

The Looping Rod Mill

PROBABLY no other process of hot metal forming is as spectacular or seemingly possesses the potential elements of danger to life and limb of the worker as the Garrett or looping rod mill, and the measure of safety which has been built up in this field has been due largely to the development of

Today—

or a year from Today . . . This Die, or *any* CARBOLOY Die, can be Duplicated!

From the powdered metal through to the finished die, the simplicity and efficiency of the Carboloy Die manufacturing methods are of benefit to the Carboloy Die user.

Take, for example, the manufacture of the raw nib. This is made by pressing the powdered metal into steel molds with steel plungers which form the rough shape of the hole specified. The final finishing operation removes but little additional material and the skill necessary to do so is reduced to a minimum.

Because of this, the die of special or standard shape which you purchase today can be duplicated exactly at any time.

Translated into terms of results for the die user, the complete manufacturing technique employed makes possible less scrap, fewer rejections, better finish, greater life per hole size and an improved, more economical product. Also, because of the simplicity of finishing, an additional saving may be obtained by purchasing the rough nib and finishing to the starting size in your own plant.

It will cost you nothing to obtain full information on Carboloy Die performance. May we have our representative call, and also include your name on our mailing list to receive Carboloy Die Bulletins as they are issued?

CARBOLOY COMPANY, Inc.

NEWARK: 144 Orange St.
PHILADELPHIA: 4801 N. Broad St.
PITTSBURGH: 704 Second Ave.
CLEVELAND: 4503 Hough Ave.
DETROIT: 2481 E. Grand Blvd.
CHICAGO: 565 W. Washington St.

Canadian Representative
Canadian General Electric Co., Ltd.
Toronto, Canada

CARBOLOY

DRAWING AND EXTRUSION DIES

The Mark of CARBOLOY

ADVANTAGES OF USING CARBOLOY DIES

1. Rough nibs are molded to shape of finished hole. Duplication is assured by this method.
2. To finish die, only a few thousandths must be removed from rough nib.
3. Superior surface finish.
4. Longer life per hole size.
5. Less rejections, less scrap and a more economical product.

safe practices as well as to the installation of mechanical guards and safety devices. Such mills, because of the speed with which operations must be carried on, present many accident hazards. Constant efforts however during recent years have minimized these hazards and have resulted in greater security for workers. While considerable time and money have been expended in making the work safer, many organizations are directing much attention to the human elements, which must always be considered, in this problem.

✦ ✦ ✦

THE rod mill must be considered a composite organization working as a unit. In other words, one portion of it cannot operate while the rest of the mill is closed down. It is therefore necessary that all associated in this work be impressed with the idea that in every instance their work influences that of others and their safety is a common interest to all concerned.

✦ ✦ ✦

SUPPOSE we consider the operation from the following standpoint:

a. Handling billets.
b. Billet Heating Furnaces.
c. Rolling the billets.
d. Hooking.
e. Reeling.
f. Adjustment and repairs.
g. Handling scrap.

✦ ✦ ✦

Handling Billets

HANDLING billets before charging to the heating furnaces is accompanied by the hazard common to manual handling of very heavy materials. Some of the most common accidents which occur in this work are:

1. **Dropping a billet on the foot.**
2. **Pinching the hands underneath or between billets.**
3. **Accidents resulting from stumbling or falling.**
4. **Strained muscles or ligaments due to faulty footing or improper posture and lifting practices.**
5. **Injuries caused by the improper operation of overhead cranes or magnets.**

✦ ✦ ✦

Safeguards for Billet Handling

THERE are others of course, but these are outstanding. To minimize these hazards, mechanical safeguards should be installed where practicable, rules and regulations formulated and enforced, and above all, instructions given which will inform or educate the worker to know and avoid the hazards of a particular job. For instance take the first common cause of accidents, that of dropping the billet or other heavy objects on the feet. Of course workers should always be in the clear when such materials are being moved, but occasionally it is necessary that a man work close to a moving table or a magnet. Should a billet be accidentally released and strike the worker a serious accident would undoubtedly result. It is a general practice to equip such workers with foot protectors such as is shown in figure 1. This may appear cumbersome, but men readily realize that when it is necessary to wear such protection that it is better to have this equipment than a badly mashed foot. This particular protector is made of cold rolled steel and is manufactured by one company for their own use. This particular equipment reduced foot injuries which were causing considerable trouble in handling billets.

✦ ✦ ✦

Unloading and Handling

THE unloading of billets from a car or barge is attended with certain hazards varying in nature and degree by their existing conditions. It is essential that the crane or magnet operator and the workers understand every move to be made. This will prevent men from accidentally walking under loads, a very hazardous practice, and will tend to keep them in the clear when loads are being shifted. It is essential that the foreman supervise this work closely at all times to prevent his men being injured. Safe practice necessitates the use of tongs in handling billets, since lifting, pulling, or arranging these by hand would greatly increase the hazard of injury When billets are lifted by hooks, cranes, chain or rope slings, the equipment should be inspected regularly by thoroughly competent persons. Where a magnet is used, care must be exercised to prevent accidental dropping of the

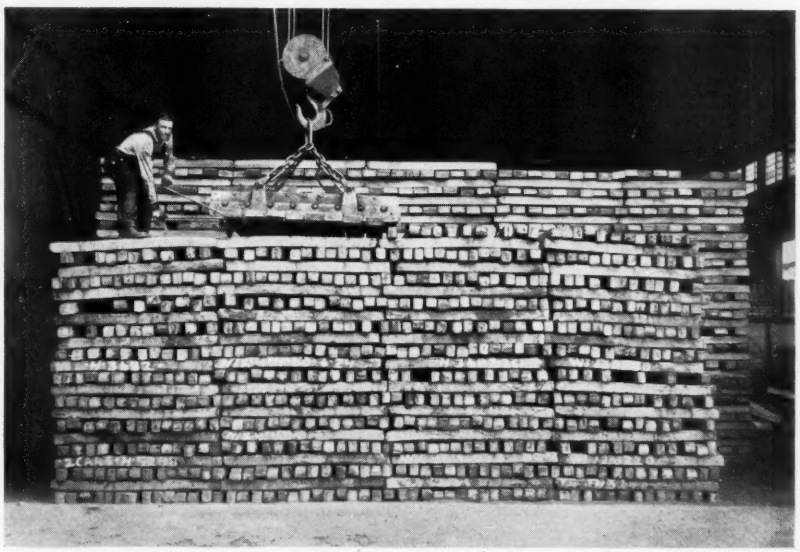


Figure 2. One method of piling billets. Note that tongs are used to guide the magnet and that wooden shims are used to make the piles stable. ✦ ✦ ✦ ✦ ✦ ✦ ✦

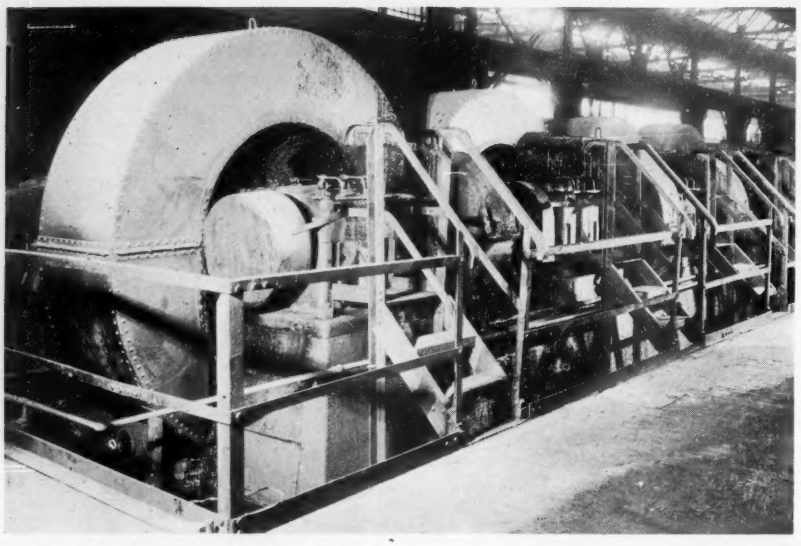


Figure 3. A properly protected set of 17″ billet mill driving gears. Note the hand railing and steps leading to the bearings for easy access while oiling.

load due to manipulation of the magnet control. The switch should be so located, or the handle protected in such a manner, that it prevents the possibility of the crane operator accidentally knocking it to the off position and dropping the load while operating other movements of the crane. Of course the magnet cable and other equipment should always be in first class operating conditions and the operator should make sure that connections are securely made.

✦ ✦ ✦

Piling Billets

WHILE the piling of billets seems to be a very simple operation nevertheless there are a number of hazards involved and if the work is not properly carried out the pile is a constant source of danger. In general the following suggestions will be found as good piling practice:

1. **Make sure billets are piled on firm ground.**
2. **That the pile is kept straight.**
3. **That the billets are not piled too high.**
4. **That step-up piles be used where possible.**

✦ ✦ ✦

IT hardly seems necessary to mention that soft or spongy soil or uneven ground increases the hazard of piling. However there are cases on record where piles were constructed on such earth and after a considerable load had been placed the pile sagged allowing the billets to slip to one side and fall on men. This carelessness of course not only resulted in several serious personal injuries but entailed the expense of rebuilding the entire pile. Of course billets should be placed straight in the pile and it is advisable that the foreman supervise this work at all times. Particular attention must be given to crooked billets as they may cause rocking and possibly result in the pile falling. It is the general practice in many organizations to pile crooked billets separately to eliminate all hazards possible. There are of course many other angles of the billet handling problem which must be considered.

✦ ✦ ✦

Billet Heating Furnaces

SERIOUS accidents have occurred because of the improper operation of heating furnaces and it is advisable to have only experienced men with the equipment to undertake this work. In general there are five fuels commonly used. These are natural gas, coke oven gas, producer gas, oil, or pulverized coal. The hazard incident to the heating and conveying of billets while hot are well known but safe practices on these operations are not always followed.

✦ ✦ ✦

SUPPOSE we first consider the practice generally followed in lighting a furnace. Regardless of the type of fuel used in all cases the furnace should first be ventilated thoroughly to remove any possible accumulation of explosive vapors. In most cases this is usually accomplished by a forced draft. If pilot lights are not supplied to burners a torch or other

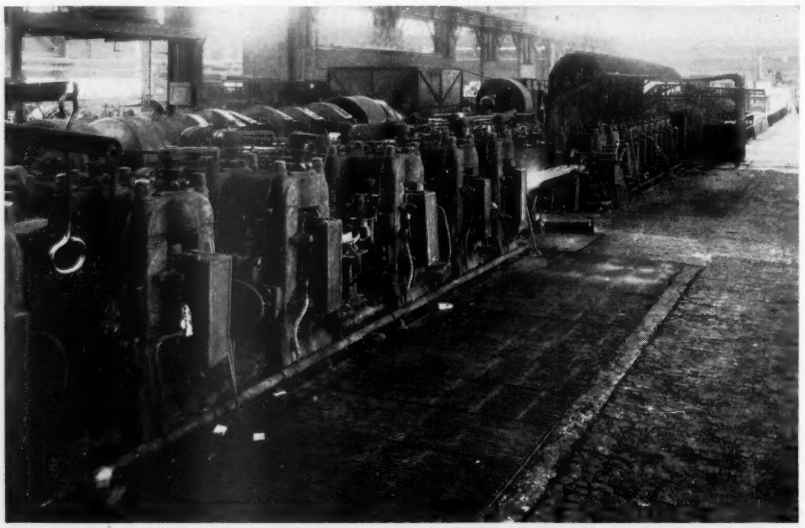


Figure 4. The guards protecting roll neck wabblers are shown here. Note the screen guards over the finishing train of a continuous rod mill.

means of supplying ample fire to the burner should be provided to make sure that a fuel will ignite when turned on. This will prevent gas accumulations in the furnace. Should a burner be accidentally extinguished the fuel supply should be cut off immediately and the furnace thoroughly ventilated to remove any possible accumulation of gases. Furnace operators should thoroughly understand the hazards associated with the particular fuel to be used.

✦ ✦ ✦

GOOD furnace practices are essential, both from the production and safety viewpoint. Unevenly heated billets not only tend to decrease the quantity and quality of the product because of minor breakdowns or by choking the mill, but they also become a source of danger to the worker. It is often necessary for the operator to examine the interior of the furnace and it is common practice to use suitably colored lenses for glasses or goggles. It is advisable for men working at the discharge end of a furnace to wear proper goggles for eye protection. There are many cases on record where flying scale has struck the worker in the face causing a serious burn or injury to the eye.

✦ ✦ ✦

Billet Conveyors

THE billet is conveyed from the furnace to the roughing or break-down rolls by means of a series of rollers revolving in the direction required. These rollers are gear driven and because of the hazards of workers or others being caught and injured, gears, shafts, or other moving parts of such equipment should be enclosed.

Men should never be allowed to crawl or walk over conveyor tables. If there is sufficient need of crossing, a suitable bridge should be constructed over the conveyor to eliminate this hazard. When repairs or adjustments are necessary to such tables maintenance men should of course see that operating switches are open and locked to prevent accidental starting. Repairmen should also be instructed to replace all guards before returning the equipment to use and operating men should not be permitted to use equipment until guards are in place.

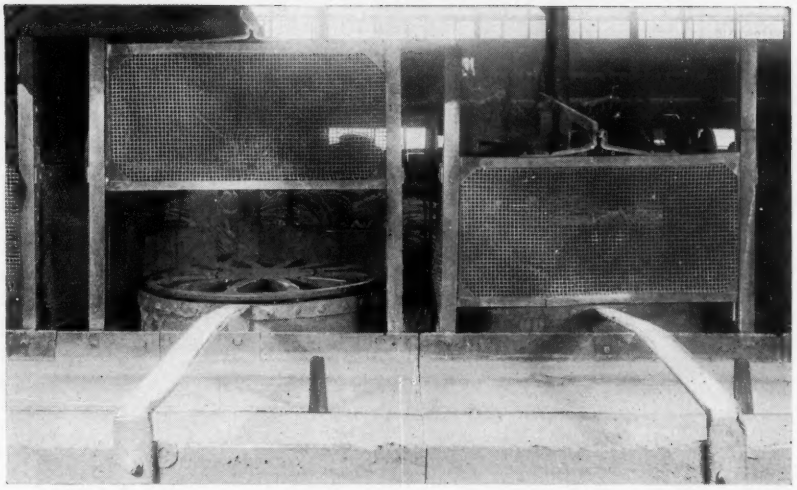


Figure 5. Reel protection guards with automatically operated doors. ✦ ✦ ✦ ✦

✦ ✦ ✦

Rolling the Billet

THE speed at which a section of steel travels through the rolls varies with the type of mill, and also in accordance with the relative position within the mill. Thus a billet in one Garrett type of mill will pass through the roughing rolls at approximately 330 feet per minute and a round rod will leave the finishing rolls at 1600 feet per minute. A billet 36 inches long is transformed within 4½ minutes after it enters the roughing rolls into a rod 1,450 feet long. In other words its length is increased 400 times and of course, its cross-section is decreased accordingly. At each successive step the area of this cross-section rapidly decreases as the speed increases proportionately. At the finishing rolls the rod is traveling at a terrific speed, necessitating great dexterity on the part of the catcher in handling it efficiently and safely. In continuous mills the rod may be travelling at 3500 feet per minute when it leaves the rolls. A worker must be ever alert when working around this type of mill, and it is a good safe rule not to turn your back on rods moving toward you. You can walk towards the mill safely but be ever on the alert to move out of the way should a rod be released from the guide and travel towards you.

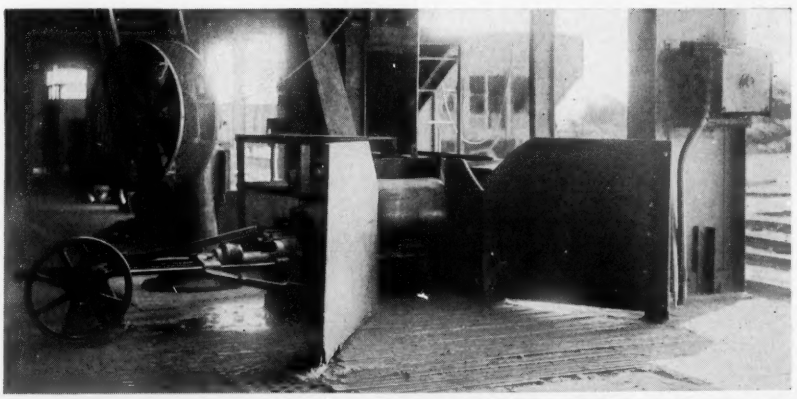


Figure 6. Scrap balling machine with extended side guards and remote control. When the operator leaves his station the machine automatically stops. ✦ ✦ ✦ ✦ ✦ ✦

Some Electric Furnace Developments In 1931

By C. L. Ipsen

Industrial Department, General Electric Company, Schenectady, New York

A Condensed Description of Improvements in Electric Furnaces During 1931 for Annealing Coil Strip, for Sheet Annealing and for Copper Brazing as Developed by the General Electric Company. ▼ ▼ ▼ ▼

DEVELOPMENT in apparatus for use with coreless (high frequency) induction furnaces has been mainly along the line of increased size. Prior to 1931 the largest furnace installation was of 600 kw capacity. During the year one 750-kw unit for non-ferrous metal melting service, and two 1250-kw electric equipments for use with steel melting furnaces, were placed in service.

Developments of metallic resistor type electric furnaces for special applications in the metal working industries were continued, and several new types were evolved.

✦ ✦ ✦

Annealing Coiled Steel Strip

TWO installations of electric furnaces for bright annealing coiled steel strip were completed and put into operation. Each furnace consists of a bell type heating chamber and several bases or cars upon which the coil strip is stacked. An inner hood or cover of heat resisting alloy is placed over the stack and serves to exclude air both during the heating period and while the coils are being cooled. An atmosphere of illuminating, or other suitable gas, is maintained under the hoods.

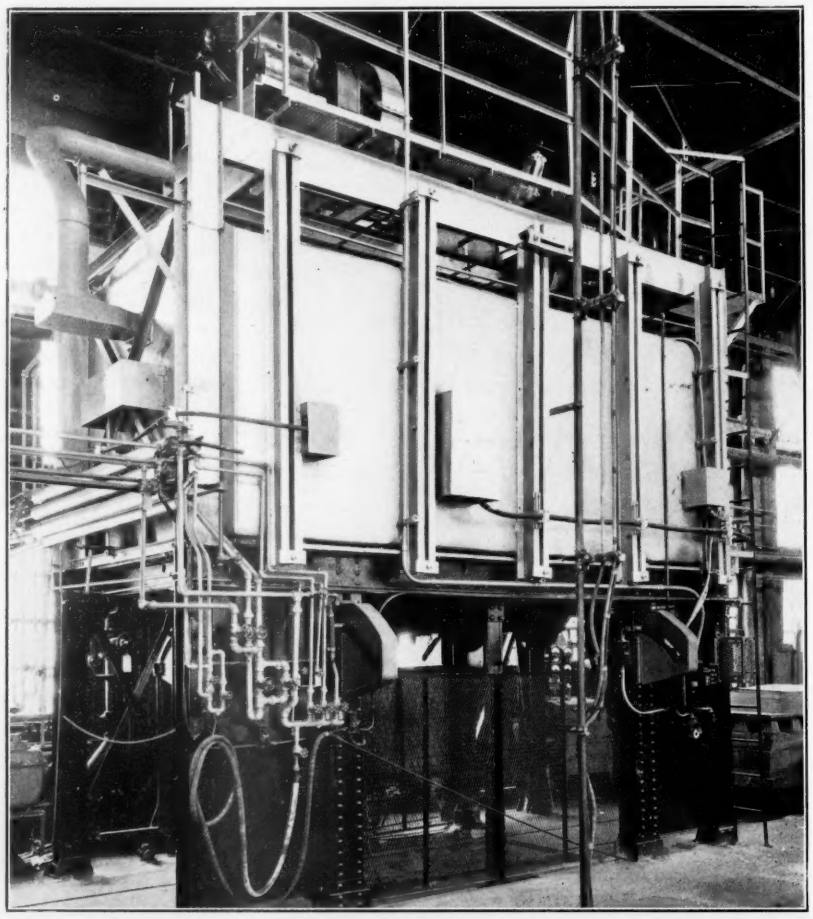
Results of operation have indicated the superiority of this type of furnace for annealing coiled strip. The advantages are a great saving in time required for annealing, as well as in the floor space and labor of handling, and an improvement in the quality of the product as regards uniformity of annealing and surface condition. The energy requirement is approximately 175 kw-hrs. per ton.

One installation of these furnaces is used almost exclusively for annealing high carbon strip. This material is liable to decarburization during annealing, and unusual precautions have been necessary in the past to anneal it properly. With a suitable atmosphere maintained under the hoods in the electric furnace, it has been found practical to anneal this material to the correct temper without decarburization. This is a result of the accurate control of the temperature and time cycle, as well as the atmosphere.

Sheet Annealing

A new type of furnace, applicable especially to annealing steel sheets, has been developed in which a load of material can be cooled in the furnace in a comparatively short time.

With previous types, the cooling rate of a loaded furnace is so slow as to make the output very small, and the use of furnace cooling impracticable. The new furnace is lined with light weight refractory brick so that the heat storage in the furnace walls is comparatively



Elevator Furnace for Annealing Sheet Steel and Lamination Punchings, Equipped for Operating with Atmosphere of Various Gases and Circulating System for Accelerating and Controlling Cooling Rates.

small, and employs a circulating system for the furnace atmosphere, with an external cooler by means of which the heat may be extracted from the furnace and charge at a comparatively high rate.

The cooling system consists of a finned tubular type surface cooler, through which water flows, the necessary duct and damper system, and a motor-driven blower which circulates the gas from the furnace through the cooler and back to the furnace. The cooling rate may be controlled by adjusting the speed of the blower, or by the valves in the duct system. The use of hydrogen as an atmosphere increases the effectiveness of the system because of the high specific heat of this gas. A load can be cooled in this furnace in about half the time that would be required if the load were set in the open room under a steel plate hood. The surface condition of the load is also improved because it is not necessary to expose it to the air while at high temperature, as would be necessary if it were transferred to a hood. The circulation of the atmosphere insures a uniform cooling rate resulting in much flatter sheets.

This type of furnace provides means not heretofore available, for cooling masses of material at controlled rates in a non-oxidizing atmosphere.

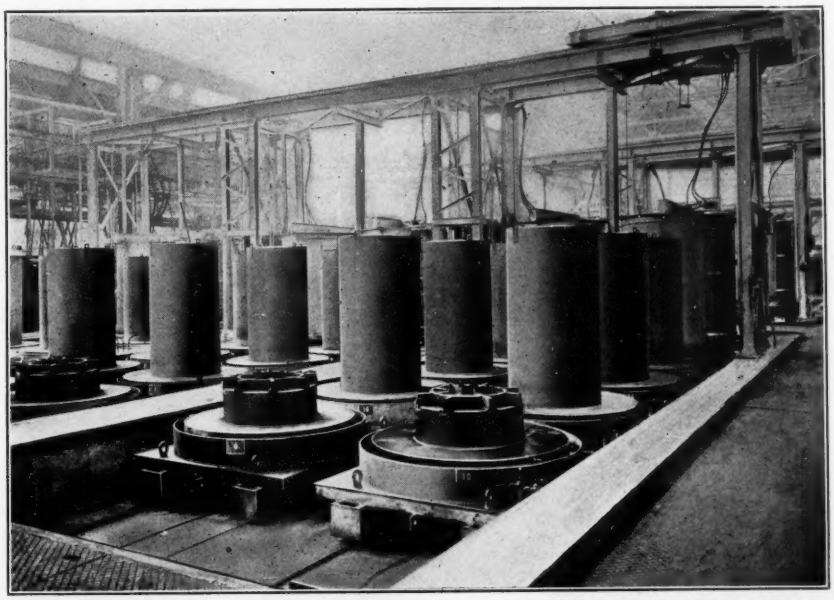
✦ ✦ ✦

Copper Brazing

SEVERAL new applications of the copper brazing process have been made. This process is used for brazing joints between steel parts. Copper in the form of wire, chips or powder is applied near the joints to be united, and the parts are heated in a controlled atmosphere furnace to a temperature above the melting point of copper. The copper flows into the joints by aid of capillary attraction and upon cooling a joint of high strength is the result.

One of the recent applications of this process is for brazing steel tubes, which are used for automobile gasoline lines, hydraulic brake lines, refrigerators, etc. The manufacturer of this tubing is now using two electric furnaces for this process, and a third is under construction.

The controlled atmosphere for the furnace is supplied from an Electrolene producer, which is an electric furnace for reforming city gas mixed with steam, into suitable gas for furnace atmosphere.



Battery of 12 Bell Type Furnaces, Showing Movable Cars and Hoods for Bright Annealing Coil Strip. Coil Dimensions 16 in. Inside Diameter by 36 in. Outside Diameter. Loading Height 56 in. Average Charge 2½ Tons. Furnace Rated 90 KW., 220 Volt, 3 Phase. American Steel & Wire Co., Cleveland, Ohio. ✦ ✦ ✦ ✦ ✦ ✦ ✦ ✦ ✦ ✦ ✦

High Temperature Strip Heaters

IN 1929 there was developed a wide line of moderately priced general purpose strip heaters with a steel sheath for operating temperatures up to 750 deg. F. These were in physical sizes ranging from 7 to 24 inches in length, and electrical ratings from 150 to 500 watts.

This year (1931) a parallel line higher temperature strip heaters was developed. These are suitable for temperatures up to 1200 deg. F., and are available in the same physical sizes as the 750 deg. F. heaters.

The new heaters have a calorized steel sheath.

THE three-phase arc furnace for metal melting and refining service requires multiple voltage control. This is provided by means of taps in the primary winding of the furnace transformer. Formerly oil circuit breakers were used.

Fig. 3. Installation of electrolene producer and copper brazing equipment. ✦ ✦ ✦

Radio Coil Impregnation

*By B. F. Reimers
Public Service Electric and Gas Co.

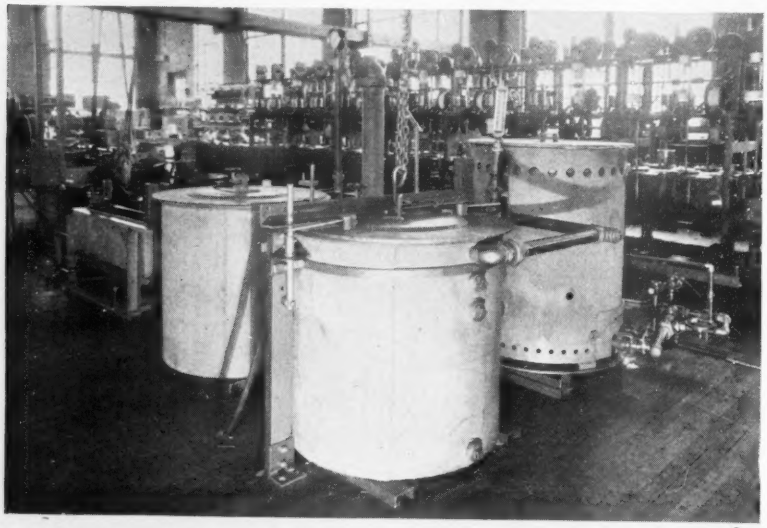
Bitumens of Various Kinds are Employed to Impregnate Copper Wire Coils for Electrical Apparatus.

A Unique Method of Impregnation Developed by the Cornish Wire Co., of Paterson, New Jersey is Described Here.

THE Cornish Wire Company of Paterson, New Jersey, has recently added to the industrial gas equipments required for the operation of the plant a unique method of coil impregnation using gas as fuel.

BITUMENS of various kinds are employed to impregnate copper wire coils for electrical apparatus, the melted bitumens being forced into the coil in a vacuum tank and forming a solid insulation when cooled. Brittle compounds, which gradually pulverize due to vibration in service, and soft compounds, which melt and run out under service temperatures are usually avoided. Among other substances, refined grades of petroleum oils are used extensively for the insulation of transformers, switches, lightning arresters, and similar equipment.

THE equipment as indicated in the photograph consists of two steel tanks used for impregnation of the coil and one tank as an oil storage and supply tank combined. Each impregnation tank is 24 in. in diameter, 24 in. in height and is constructed with jackets suitable for a system to circulate heated oil. A 2-in. outer covering of insulation to reduce loss from radiation is enclosed by the exterior shell. The oil storage and supply tank, 24 in. in diameter, 24 in. in height, is amply insulated and is heated by a Buzzer atmospheric burner. Automatic regulation is furnished in the use of a Robertshaw thermostatic control valve. A centrifugal pump is connected in the pipe line joining the three tanks and supplies a continuous stream of heated oil to the jackets from the storage tank. The oil circulating through the jackets is returned to the open supply tank. A thermometer is installed in the return line of the system and indicates the temperature of the oil as it enters the supply tank, after its passage through the jackets. Each impregnation tank is connected to a vacuum pump to exhaust the air from the interior of the tank during impregnation and contains a paraffin bath of suitable content into which the coils to be impregnated are lowered. The paraffin bath is maintained at a variety of temperatures in a range of 150-350 deg. F., depending upon the type of coil and time length of impregnation. These temperatures are maintained by the rapid circulation of heated oil and thermostatic action of the burner equipment.



System of circulating heated oil at the Cornish Wire Company, Paterson, N. J. ✦ ✦ ✦
*From Industrial Gas.

✦ ✦ ✦

EACH coil before impregnation is a part of the manufacturer's operation and consists of a copper wire properly wound with a cotton insulation on a coiling machine, impregnated during the operation described and finished in the routine of plant production for the radio trade.

THE total value of wire and wire products made in 1929 in the United States, amounted to $884,460,174, an increase of 26.8 per cent, as compared with $697,684,133, reported for 1927. The total production of wire reported is approximately four and three-quarter million tons consisting of plain iron and steel wire, copper wire, brass wire and other non-ferrous wire. Approximately 12½ per cent of this production is copper wire.

All products of the Cornish Wire Company are used in the construction of radio equipments.

Outstanding Personalities of the Wire Industry

Percy R. Clark, who is well-known throughout Europe as an authority on the manufacture of wire rope is at present Managing Director of the Anglia Company, manufacturers of wire ropes, Ploesti, Roumania.

He was formerly Managing Director of the Baku Wire Rope Cable Co., LTD., and Ropeways (Russia) Ltd.

He is also associate member of the Institution of Petroleum Technologists (England), member of the Institute of Metals (England) member of the Iron and Steel Institute (England), and member of the Institution of Production Engineers (England), and is noted for his research in both production and uses of wire rope.

John W. Lees, 68, vice president of the Inland Steel Company, died Sunday, January 3rd, in his home, 3443 Fir Street, Indiana Harbor, Ind. He had been ill for ten years and had been retired from active business during the major part of that period.

Mr. Lees came to Inland Steel Company, as general superintendent of the Indiana Harbor Works and made an exceptional record of splendid achievements over a period of 18 years. He was made a vice president in 1921 but due to poor health was never very active after that year.

Before coming to Inland, Mr. Lees was with the American Steel & Wire Company in Cleveland, and still earlier, with the Illinois Steel Company of Joliet.

Mr. Lees is survived by his widow and one daughter.

✦ ✦ ✦

Carl Thompson, native of Martins Ferry and until recently superintendent of the New Castle (Pa.) plant of the United States Steel Company, has been appointed acting general superintendent of the Laughlin plant of the American Sheet & Tin Plate Company located here. He succeeds E. A. Machin who is on leave of absence due to illness. **Harold Pyle,** assistant manager of the Laughlin plant, has been transferred to New Castle.

✦ ✦ ✦

Jones & Laughlin Steel Corporation announces appointment of **James Caven Foster,** manager of sales for wire products, a promotion from the position of assistant which he held for a number of years. He succeeds E. D. Batchelor, who is placed in charge of a special department of general sales.

✦ ✦ ✦

C. A. Nighman, manager of the hot mills, cold roll mills, and wire drawing department of the Singer Mfg. Co., Elizabethport, N. J., has been granted a three months' leave of absence, which he will spend in southern California.

✦ ✦ ✦

E. W. Flansburg, heretofore superintendent of the Sycamore, Ill., mills of the Anaconda Wire & Cable Co., has been advanced to the superintendency of the Marion, Ind., mills of the company. **Charles B. Townsend** has been appointed his successor in Sycamore. **W. H. Morley,** of the Sycamore plant, has been made superintendent of the Pawtucket, R. I., mills.

✦ ✦ ✦

C. H. Elliott, who has been manager of the Warren properties of the Republic Steel Corporation for a number of years, is to be transferred to Youngstown and named manager of the Youngstown district. Mr. Elliott is regarded as one of the best steel men in northeastern Ohio and has made an outstanding record at the Warren plant.

Henry F. Devens has been elected president of the Oliver Iron & Steel Corporation, Pittsburgh. He was vice-president and general manager of sales since January 1, 1930.

✦ ✦ ✦

Paul Mackall, a vice-president of the Bethlehem Steel Corporation, has been elected a director to fill a vacancy created by the resignation of Harry G. Dalton of Pickands, Mather & Company of Cleveland.

✦ ✦ ✦

In the metallurgical department Carnegie Steel Company, **E. T. Barron,** metallurgist, and **J. C. Leech,** manager, bureau of inspection and tests, have been advanced to the position of assistant metal lurgical engineers. **G. Elkins Knable,** metallurgist in the department, has been appointed manager, bureau of inspection and tests in this department.

✦ ✦ ✦

Charles F. Kenworthy, Inc., Waterbury, Conn., builders of industrial furnaces, announce the appointment of **W. H. A. Robertson & Co., Ltd.,** Lynton Works, Bedford, England, as their sales representatives in Great Britain and Continental Europe succeeding their former representatives, Messrs. Larmuth Brothers in England and Ernst. Rosenberg & Company in Berlin.

'Round the World With the Wire Industry

German Price War on Wire Gauze

THE sharp price war on wire gauze is still continuing. The prices for American (hard) wire gauze are comparatively firm, but the prices for soft wire mesh are cut sharply, as the competition between the Austrian, Czechoslovakian and German manufacturers is very keen. In this week (Jan. 11, 1932) a price of s (gold) 4/10½ has been accepted for 12 mesh, 50x2′ soft green wire gauze and s 5/1 for 14 mesh. The prices for brass, copper and bronze wire gauze have been also sharply reduced.

✦ ✦ ✦

Situation of German Wire Cable Industry Unfavorable

COMPARED with conditions over the first half of 1931, the situation of the German wire cable industry in the second six months of that year became much less favorable. Depreciation of British currency—Great Britain being a very important factor in the wire cable and rope trade of the entire world—has not only resulted in an almost complete cessation of German wire cable exports, but has simultaneously greatly improved her competitive position in the German domestic market. The situation is further aggravated by the inability of important and very reliable foreign purchasers to remit payments due because of their inability to secure the necessary exchange. All of which has caused a marked curtailment in the operations of the German wire cable industry.

✦ ✦ ✦

European Wire Cartel Inaugurated

THE International Wire Cartel, which has its headquarters in Brussels, Belgium, commenced its activities on January 2nd. This compact sales cartel comprises Holland, Belgium, Germany, Luxembourg, Czechoslovakia, Hungary and Denmark. It controls a total quota of approximately 718,-000 tons, of which 53.4 per cent (384,000 tons) is allotted to Germany.

For the time being the cartel has decided to permit affiliated concerns to maintain direct business relations with former foreign customers and to conclude contracts. The selling prices are to be fixed by the cartel. Negotiations are to be opened with the exporting trade, which is principally concentrated in Hamburg, Bremen, Rotterdam, and Antwerp, with the object of obtaining its cooperation by the offer of suitable possibilities of profit.

France is for the present remaining outside the cartel, as the French wire manufacturers have been unable to reach agreement among themselves. A loose agreement has, however, been concluded with the latter, under which they have given an understanding not to undercut the prices quoted by the cartel. A similar arrangement has been reached with Austria, which country does not yet see her way clear to becoming a member of the cartel. However, it is anticipated that before long the difficulties of the wire industries of both France and Austria will be smoothed out and that they will then apply for full membership.

✦ ✦ ✦

Scottish Steel Tube Makers Combine

ANNOUNCEMENT had just been made of proposals for a fusion of interests between the two Scottish steel tube manufacturers —Stewarts & Lloyds, Ltd., and the Scottish Tube Company, Ltd. The directors of the former company have offered to purchase outright the shares of the Scottish Tube Company or, alternatively, to take over the assets of that concern in return for shares in Stewarts & Lloyds.

The anticipated fusion of these two companies will mark the final step in the rationalization in the Scottish tube industry, a process which has been going on since before the War, but which has been made more urgent by post-war economic and industrial conditions. With this step Stewarts & Lloyds will become the only manufacturers of steel tubes in Scotland, and having already been the largest tube makers in the United Kingdom the projected amalgamation further strengthens their position. They had previously (in November of 1930), effected a close working agreement with the holding company, Tube Investments, Ltd., controlling the English tube industry.

✦ ✦ ✦

Warning Regarding Compliance With Marking of Origin Regulations

RECENT cases brought to the attention of the American consulate at Bombay, (India) indicate that the local customs authorities are more rigidly enforcing the provisions of the Indian merchandise marks act, and that American goods failing to strictly comply with the provisions of the act, as interpreted by officials of the Central Government of India, are being confiscated or subjected to heavy fines.

The principal provisions of the Indian merchandise marks act require the application of a qualifying indication of origin on goods imported from the United States, if bearing (1) any name or trade-mark which is or purports to be the name or trade-mark of a manufacturer, trader, or dealer in British India or the United Kingdom; (2) any name which is identical with or a colorable imitation of the name of a place in British India or the United Kingdom; and (3) any trade description in the English language, including descriptive terms or fancy names.

'Round the World With the Wire Industry

The British Institute of Metals has announced the postponement of its American meeting which was to have been held in the United States and Canada next Autumn.

The postponement is due to the disturbed economic and financial conditions that prevail in Europe and America at the present time. An announcement of the Institute's place of meeting next Autumn will shortly be made.

✦ ✦ ✦

British Buy German Nails

GREAT Britain has resumed purchase of wire nail from Germany. British wire nail imports of 7360 tons in November were the highest ever recorded, but since then nothing has been bought, as the British prices were almost as low as the continental. Since the British industry has now increased the extras by 33⅓% and the basis prices by 15%, import movement has set in again to a considerable extent.

✦ ✦ ✦

New Lead Plant in Central Asia

The "Sredazsvinyetz" (Central Asiatic Lead Combine), which will be the largest combine for lead production in the U. S. S. R., with an annual capacity of 60,000 tons, is to be built in Central Asia ,according to report issued by Russian commercial agency, Amtorg. The centers of this combine will be Chimkent in southrn Kazakstan, where the lead smelter will be located, and the Turlan district, where the mine and the concentration plants will be built.

✦ ✦ ✦

Big Cable Factory For Japan

ADVICE has just been received that the Sumitomo Cable Works in Japan is to start work in the immediate future on the construction of a new factory near Osaka for the manufacture of submarine cables on a large scale.

Wire Trade Only Bright Spot in German Steel Situation

IN Germany iron and steel are approximately 3% cheaper than they were in 1913 and 23% cheaper than two years ago. Yet demand has not improved and the expectation that the price concessions would have no influence on business has been justified. Last year steel consumption per capita fell by about 58 per cent compared with 1930, and this year another sharp decline is expected as building activity has nearly come to an end and is unlikely to be more than 10 or 15 per cent of what it was in 1931.

The wire trade continues to be the one bright spot of the German ferrous metals industry. The higher prices fixed by the International Wire Export Company are being paid and demand has improved. The German Wire Cartel has reduced domestic prices by 10 per cent. The lack of orders from the United Kingdom, however, is seriously felt.

The Continental Wire Rod Cartel is experiencing some difficulties, as the Belgian-Luxembourg group is highly dissatisfied with the price policy for export.

✦ ✦ ✦

THE IWECO denies the report, that negotiations have been commenced with the American steel industry concerning acceptance of the American steel makers as members of the European wire cartel.

✦ ✦ ✦

German Export Rebates

THE German IWECO (International Wire Export Company) is negotiating with the export merchants to arrange a classification of buyers according to turn over. The exporters on the "approved list" will get rebates from 2½-4% and a special annual turnover bonus of 1-2% according to the quantity sold. The IWECO has also started to keep a "black list". Members are reporting to the IWECO all cases, in which losses occurred through the attitude of "claim makers" and buyers who are known to be of dubious character will not get offers in future.

✦ ✦ ✦

Iweco Attempting Production Control

THE IWECO is trying to buy wire manufacturing plants abroad and either close them down or to pay an annual amount for an agreement to stop production. In the first month of its existence the IWECO has purchased 1 Danish, 2 Greek, 1 Rumanian and 1 Portuguese Wire mill. With the largest Dutch maker it has been agreed that the factory will close down for a period of 5 years in a consideration of the payment of an annual sum of $20,000. Negotiations will be continued also with other makers, and also in Canada, the United States and other overseas countries. The IWECO is trying to reduce the world capacity in the wire industry and a number of Belgian, German and French makers will be also closed down, although the continental industry which operated at 38-40% of the capacity was operating at 45-47% end of November and 47-47% end of December, due to the larger export demand for wires.

✦ ✦ ✦

Barbed Wire Types Reduced

NEGOTIATIONS are being carried on between the European makers of barbed wire with the purpose of reducing the number of existing types of barbed wire to one. This will be probably the "YOWA" pattern, for export to certain Latin American republics. The American Waukegan pattern will still be produced. This standardization will contribute towards a reduction of costs.

Leak Proof Enameled...
Magnet Wire...
For Radio and Ignition Coils...

▲ ▲ ▲ All wire meets the highest requirements ▲ ▲ ▲

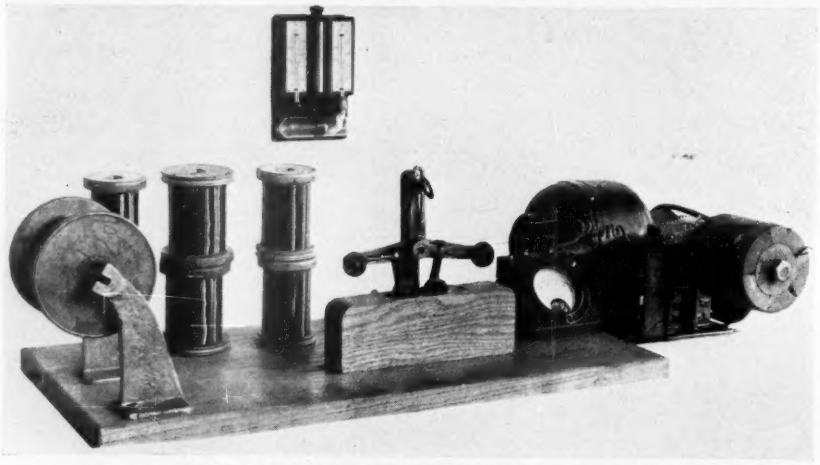
Winco PRODUCTS wire has been developed to meet the severe conditions placed on wire by high potential ignition coils and high frequency radio coils. ▲ ▲ ▲

Our special method of process enameling produces an unequalled product for all buyers of magnet wire. ▲ ▲ ▲

The continuity of film has heretofore not been equalled. ▲ ▲ ▲

Our method of testing all wire before shipment is calculated to give the user the highest degree of protection ▲ ▲ ▲

GENERAL VIEW OF PLANT, WINSTED, CONN. ▲ ▲ ▲



MERCURY TEST APPLIED TO ALL WIRE ▲ ▲ ▲

ALL WIRE TESTED BY MERCURY TEST AND GUARANTEED LEAK PROOF

Winco PRODUCTS

We would be pleased to quote on your requirements.

Winco PRODUCTS

WINSTED INSULATED WIRE COMPANY

Incorporated

Winsted, Connecticut

Copper Wire ▲▲▲
Specially Processed ▲▲▲
For Enameling Purposes ▲▲▲

▲▲▲ High Conductivity Electric Wire ▲▲▲

And These Other
HUDSON
Fine Bare and Special Wire

Copper---High Brass---Low Brass---Pure Tin---Cadmium---
Bronze, Various Grades---Lead---Zinc---Commercial
Bronze---Phosphor Bronze---Silver Plated Copper---
False Gold--10%, 18%, 30% Nickel Silver. LAHN-
False Gold---Copper---Silver Plated Copper.
BRUSH WIRES---CRIMP and
STRAIGHT---Brass---Steel---
Copper---Nickel Silver---
Phosphor Bronze---

▲▲▲ Metallic Fibre for Packing Purposes ▲▲▲

Thirty years experience in the production of fine bare wires have resulted in improvements so pronounced that today we offer grades of wire that will far out-perform types which have previously been considered standard. ▲▲▲

Every pound of wire is rigidly inspected and tested before shipment, guaranteeing the buyer absolute uniformity of product. ▲▲▲

You can rely on Hudson wire always. ▲▲▲

If you have a specific problem demanding wire of exact requirements, write to us about it. ▲▲▲

It costs nothing and involves you in nothing. ▲▲▲

Better wire at lower cost. ▲▲

We can serve you quickly and economically.
Send in your specifications for a quotation.

HUDSON WIRE COMPANY
Ossining, N. Y.

Estab. 1902 — Successors ROYLE & AKIN — Estab. 1902

Wire Questions and Answers

Question No. 1210---Hand Protectors

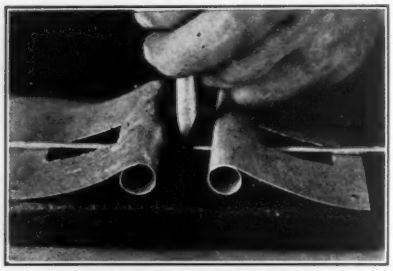
The Wire Association:

We have a small shop and would like to know of an inexpensive device to protect the hands of workmen engaged in cutting odd lengths of wire by hand and also in straightening short lengths of wire. Can you help us on this?

Answer No. 1

The Wire Association:

Many accidents are caused in small shops because modern devices cannot be afforded. In the simple operation of cutting odd lengths of wire there is danger from flying cut pieces. If the wire is too large to be cut with pliers the small shopman usually resorts to a hammer and chisel. The writer recently made an effective little hold down for just this purpose and it is illustrated herewith for the benefit of others who have work of this kind to do.



First, a bench block of cast iron or steel is procured and two pieces of flat spring steel riveted to it in the manner shown. The ends of the springs are rolled round and a hole cut out of each so that the wire can be shoved through. By rounding the springs as shown the wire can be pushed right through without the necessity for raising the springs by hand. Very thin flat steel will be found sufficiently strong to hold any wire within its capacity from flying while it is severed with hammer and chisel.

Answer No. 2

The Wire Association:

We have to straighten quantities of short pieces of one-eighth wire from time to time. Wo do this with a light hammer and a small bench plate. A rather unusual method of holding this plate prompted me to photograph it for you in case anyone else cared to adopt it.

When the bench plate is laid flat it is difficult to see between the plate and the wire as the latter is rolled along to see if it is flat as it is more convenient to do this work sitting down and as it would be awkward to raise the plate

The Wire Association is for the specific purpose of improving production methods. It was organized as a clearing house of ideas on technical problems and research work in all phases of practical wire drawing and wire working.

The following inquiries were received from and answered by members of the Wire Association. These inquiries are sent to the Secretary of the Association who acts as a central clearing point, and neither the names of the firms or individuals sending in the inquiry, or of the men or firms replying are divulged without permission.

Join the Wire Association!

level with the eyes, I did what seemed to me the next best thing, in other words, I held the plate at an angle by means of a bolt threaded into it near one end. Thus, with a piece of white paper at the bottom, I can sit comfortably with the plate well below my eyes and look down between it and the work.

✦ ✦ ✦

Question No. 1211---Die Lubrication

The Wire Association:

"Having read with great interest the papers of Mr. Longwell and Mr. Kline, given at the Wire Show in Cleveland, as reprinted in this month's issue of WIRE & WIRE PRODUCTS, it has occurred to me that like the continued story in the magazine, both of these gentlemen stop at the most interesting point.

Mr. Longwell says in effect that there is high pressure against the die, that where such high pressures exist a good lubricant must be used and that it is a good idea to draw clean wire, and to keep the lubricant free from abrasives. He cites differences in production obtained by changes in lubricant but, he does not tell us what the best lubricants are for various classes of wire nor the best methods of applying such lubricants.

Mr. Kline's paper being confined to soap as a lubricant would not be expected to give much information about other lubricants nor to draw any conclusions concerning the value of soap as against other lubricants. He tells us that soap is a good lubricant, that generally speaking low titre soap is preferable for low carbon steel wire, and high titre for high carbon steel wire, but that some mills reverse this practice. He also described a test on five soaps but does not give any information concerning the soap which was successful in the test nor the methods used in applying the lubricant.

In all lubrication problems there are two things to be determined; the best lubricant for the job, considering materials, temperature pressure, and speed, and the best method of applying the lubricant decided upon.

For instance, in automobile practice we use in the engine a parafin free oil which will withstand high temperatures, and we apply it by the splash system, or force feed system or by a combination of the two according to the engine design. On the gears we use a more viscous oil running them in a bath. On the water pump bearing we use a hard graphite grease forced in by high pressure, on the spring shackles we use another type of grease pressure fed and so on.

Surely in the lubrication of cold drawn metals there must be some chance of standardizing at least in a general way the best class of lubricant for each class of work. Furthermore, there must be some difference between the merits of applying lubrication by running the wire through a soap, or grease box, by "buttering" grease on the wire with a paddle, by incorporating lubricant in a carrying medium through which the wire is run, by

force feed lubrication, and by dies specially shaped to aid lubrication.

The writer is inclined to believe that a proper selection of the method of applying the lubricant is fully as important, in dry drawing, if not more so, than the proper selection of the lubricant.

As Mr. Longwell has shown there are tremendous pressures at the area of contact between the wire and the die. Surely no lubricant, no matter how efficient, would be of value unless it was introduced by some means between the wire and the die. It would seem therefore that an economical method of applying pressure to the lubricant, which would be applicable to any grade of oil, grease, or soap would be a very desirable thing in any class of dry drawing.

If Mr. Longwell and Mr. Kline would answer this letter, either direct or through the official organ of the Wire Association, giving what additional information they have at hand concerning the various methods of applying lubricants they have encountered in their investigations, with their opinions of each, and their recommendations for the best lubricant to use on various classes of cold drawn, we feel sure that a field of discussion would be opened that might prove highly beneficial to the members of the Wire Association."

Yours very truly,

F. M. WOODFORD.

✦ ✦ ✦

Answer No. 1

The Wire Association

"Referring to your letter of October 30th with letters attached from Mr. F. M. Woodford, Mr. R. T. Kline and Mr. Longwell regarding lubricants. (Personal—I suppose you know that Mr. Woodford represents a company that is making a die holder that is supposed to supply lubricant to the wire under pressure.)

Sometime ago a lubricant salesman called on me and said that he had a lubricant that would draw twenty (20) 300 pound bundles of wire in one hole of a cast iron die. When asked how he knew this, he said, I have just finished running a test in a wire mill. His test report showed that in one hole he ran 20 bundles, another hole 8 bundles, another hole 3 bundles, then in 2 holes 1 bundle each and ½ bundle in another hole. The man said that his soap was responsible for getting the 20 bundles in one hole, but was at a loss to know why he did not get 20 bundles in all of the holes if the soap was the cause of getting the 20 bundles in the first hole. The writer has talked to many production men and has come to the conclusion that none of them agree. What is the best lubricant? as one man will say this soap is real good, the next one will say I do not like that soap, I do not get good results from it, but this soap works very well. Well, this only goes to show what is good for one is not good for another.

I would not hesitate to say what is the best or even a good lubricant. The writer has found that for common class of wire a mixture of lime and grease does the job very well."

✦ ✦ ✦

Answer No. 2

Mr. Richard E. Brown, Secy.
The Wire Association,
551 Fifth Avenue
New York, N. Y.

Dear Mr. Brown:

I have carefully read Mr. Woodford's letter of the 7th and I am fully in accord with his idea of starting a discussion on lubricating dies. However, I do not feel qualified to open this discussion and believe that such a discussion will only be of value when it is carried on by practical wire men who have had years of experience in wire drawing.

The paper which I read at the Wire Association Meeting was written with the idea of provoking discussion among wire drawers and superintendents of wire mills. My experience has not been broad enough to warrant my giving any recommendations for lubricants to be used in wire drawing.

I therefore recommend that Mr. Woodford's idea be presented to the Wire Association with the idea of getting members to make some comment or give some facts on which a discussion could be built.

Very truly yours,

J. R. LONGWELL.

✦ ✦ ✦

Answer No. 3

The Wire Association
551 Fifth Ave.
New York, N. Y.

Gentlemen:

This will acknowledge your letter of the 9th together with Mr. Woodford's letter of the 7th and I would be very glad to make an effort to answer the questions submitted.

My remarks at Cleveland referred almost entirely to dry drawing in connection with iron and steel wire. All of the specialized products that we manufacture for wire drawing purposes with the exception of one or two are in powdered form. The soap powder is applied to the wire and die by filling up the space back of the die with the powder and allowing the wire to run through it before it reaches the die. The lime coat on the wire acts as a conveyor and carries the necessary amount of lubricant into the die in sufficient quantity to lubricate the wire and die and also to keep down the temperature of both.

The relative merits of wet drawing versus dry drawing is chiefly a matter of equipment, finish desired and personal opinion. The fact that probably 90% of the steel wire drawn is drawn by the dry process would indicate that it is the most generally accepted practice, that it produces better finish and in the case of rods, supplies a coating of soap that can be used for further drawing.

The use of grease is usually confined to low carbon wire such as fence and nail wire where finish is not an important factor.

In connection with the tests of five soaps mentioned in my article, the "B" soap was a Palm Oil Powder and while I was not given the names of the other soaps in the test, I assume that they were tallow and grease base products. The fact that the "B" soap was able to show such a decided advantage was probably due to the fact that a Palm Oil Soap is somewhat harder than tallow and that on this particular job it was able to stand up better and go further than other soaps.

It would be a wonderful thing if a table of standards could be prepared, but this is somewhat of a job because of the wide diversification of equipment, tolerance and ideas in the industry itself, and as I see it the only way to eventually establish standards will be to continue the trial and error method which of itself will produce certain standards. At the present time we do have certain definite standards which we fit to certain conditions which were arrived at after hundreds of tests over years of use.

I might say right here that my Company would be only too glad to cooperate with the die manufacturers and the wire producers in making further tests and endeavoring to set up certain additional standards by supplying, without charge, any reasonable amount of drawing material.

So far the practice of using the wire itself as a carrier for the dry lubricant has proven simple and economical and apparently satisfactory from a production end. This is probably due to the fact that the proper soap lubricant has such a high margin of safety that it probably could carry twice the reduction and twice the generated heat as it does on the average job. The question of forced feed lubrication in connection with dry drawing is an interesting one, but would probably complicate what is now a simple operation and until such time as productions are speeded up to a point where the present lubricants do not seem to fill the bill, it does not seem entirely practicable.

(*Please turn to page 93*)

A Review of Recent Wire Patents

No. 1,835,839, MACHINE FOR FORMING COAT HANGERS, Patented Dec. 8, 1931, by Cloise H. Baldwin, of Fort Worth, Texas.

This machine is provided for forming wire coat hangers in a wholly automatic way and for forming a number of hangers from a number of strands of wire at the same time.

✦ ✦ ✦

No. 1,835,910, BOLT MAKING MACHINE, Patented Dec. 8, 1931, by Roy H. Smith and Lee A. Frayer, of Kent, Ohio, said Frayer Assignor to said Smith.

These inventors provide a machine having a bolt-holder or vise, which carries the bolt wire, so as to present the cut off wire or rod to the various stations of the machine, in proper order, pointing the bolt, rolling a thread, applying a nut and discharging the nut and bolt assemblies into a suitable container.

✦ ✦ ✦

No. 1,836,518, WIRE TYING MACHINE, Patented Dec. 15, 1931, by Ivan B. Wright, of Seattle, Washington.

Particularly, this machine is a portable one for the purpose of tying the lapped ends of wire which forms a band encircling a package or the like. The tension applied may be varied by the employment of adjusting mechanism carried by the device.

✦ ✦ ✦

No. 1,836,570, ELECTRICAL CABLE AND METHOD OF MANUFACTURE THEREOF, Patented Dec. 15, 1931, by William E. Boyle, of New York, N. Y., Assignor by Mesne Assignments to General Cable Corporation, of New York, N. Y., a Corporation of New Jersey.

This is a cable for high voltages and comprises a stranded wire conductor, an outer moisture-proof sheath, and an intermediate body of insulating material including a plurality of layers of paper tape composed of a plurality of layers of dense paper not exceeding one-half mil in thickness assembled in face-to-face relationship.

✦ ✦ ✦

No. 1,836,593, WIRE ROLL HOLDER, Patented Dec. 15, 1931, by Herbert Harvey, of Los Angeles, California.

The inventor has provided a wire reel, used particularly in drawing off wire to be employed in strapping boxes and packing cases.

✦ ✦ ✦

No. 1.837,726. MEANS FOR MARKING WIRE FABRIC, Patented Dec. 22, 1931, by Walter J. Murphy, of Trenton, New Jersey, Assignor to John A. Roebling's Sons Company, of Trenton, New Jersey, a Corporation of New Jersey.

This woven wire cloth has permanently woven into the fabric and coextensive therewith, an identifying marker comprising a continuous band of tape of flexible material.

Complete Descriptions and Drawings of Patents May Be Had for 25 cents. Address, Wire & Wire Products, 551 Fifth Avenue, New York.

No. 1,837,752, TINSEL WINDING MACHINE, Patented Dec. 22, 1931, by Henry H. Beneze, of Baltimore, Maryland, Assignor to George Franke Sons Company, of Baltimore, Maryland, a Corporation of Maryland.

The machine is particularly adapted for winding tinsel into tinsel icicles in connection with Christmas tree decorations. Means are provided for grasping and holding the end of the strand of tinsel prior to the beginning of the winding operation about a forming mandrel.

✦ ✦ ✦

No. 1,837,828, SPRING CONSTRUCTION, Patented Dec. 22, 1931, by George I. Newman and Lawrence A. New of Chicago, Illinois, Assignors to United Spring Corporation, of Chicago, Illinois, a Corporation of Illinois.

This invention relates to mattress and upholstery springs, particularly where the springs are of a general oblate speroidal form. The principal object of the invention is to provide support for the ticking and filler at the points furtherest from the centers of the spring units.

✦ ✦ ✦

No. 1,837,910, PAPER FOLDING AND WIRE STITCHING MACHINE, Patented Dec. 22, 1931, by Oscar Kleinschmidt, of Leipzig-Plagwirz, Germany, Assignor to Gebruder Brehmer, Maschinen-Fabric, of Leipzig-Plagwirz, Germany.

Particularly, the inventor provides a detector associated with a machine of this kind, adapted for folding and stitching, or stapling, pamphlet sheets and the like, which detector will prevent the stapling mechanism from operating when there may be no paper fed to it for stapling. as due to an accident or when the folding mechanism runs out of paper.

✦ ✦ ✦

No. 1,837,952, ELECTRIC CABLE, Patented Dec. 29, 1931, by Jules Delon, of Paris, France.

This cable has a lead sheath combining several separately insulated conductors without conductor covering, a central packing filler filling the space formed between the conductors, packing subdivided into several elements filling the spaces formed between the conductors and the lead sheathing, each of these elements of the packing being enveloped by one separate thin conducting covering wound spirally around the element, these conducting coverings being conductively bound and connected inter se and with the sheathing by a metallic strip wound spirally around the conductors and packing elements.

No. 1,837,929, SPRING WINDING MECHANISM, Patented Dec. 22, 1931, by Henry E. Warren, of Ashland, Massachusetts, Assignor to Warren Telechron Company, of Ashland, Massachusetts, a Corporation of Maine.

The machine is not adapted for the manufacture of wire springs, but for keeping springs associated with clocks and the like wound in a uniform condition.

✦ ✦ ✦

No. 1,838,150, METHOD OF FITTING AND WINDING COILS ON POLE ARMATURES OR FILED MAGNETS, Patented Dec. 29, 1931, by Herman Papst, of St. Georgen, Schwartzwald, Germany.

A method of winding where the pole pieces are integral with the core, comprises in placing the wound bobbins for wire, formed in two parts, in mid position on the core for winding after which operation the wound bobbins are moved laterally to each end of the core against the inner faces of the pole pieces, and the retaining means being secured in position.

✦ ✦ ✦

No. 1,834,749, SPOOLING MECHANISM, Patented Dec. 1, 1931, by Charles E. Traxel, of Rome, New York, Assignor, by Mesne Assignments, to General Cable Corporation, of New York, N. Y., a Corporation of New York.

Apparatus is provided by this inventor for winding a continuous strand of material, such as wire, upon a spool, and the invention's objects are to cause the wire to be smoothly wound and at a substantially uniform tension. Means are also provided for the adjustment of the winding mechanism such that the strand may be properly centered between the flanges of the spool.

✦ ✦ ✦

No. 1,839,226, CONVEYOR BELT, Patented January 5, 1932, by Vernon C. King, of Worcester, Massachusetts, Assignor to Edward C. Bowers and Charles L. Feldman, Receivers for Wickwire Spencer Steel Company, of New York, N. Y., a Corporation of Massachusetts.

The invention contemplates the provision of a belt wherein the elements constitute a plurality of pairs of interengaged wire coils, the pairs being welded at their ends to successive links of the belt.

✦ ✦ ✦

No. 1,839,463, CENTER FOR WIRE ROPES, Patented January 5, 1932, by Ellis W. Brewster, of Plymouth, Massachusetts, Assignor to Plymouth Cordage Company, of North Plymouth, Massachusetts, a Corporation of Massachusetts.

The center for this wire rope comprises a body of twisted paper of vegetable origin, with the wire strands applied, compressing this paper.

Exports and Imports of Wire

Exports of iron and steel wire products in November and December, 1931.
(In gross tons)

	December 1930	November 1931	December 1930
Wire rods	2,162	1,353	3,013
Hoops, bands and strip steel	1,616	1,275	1,824
Plain black or galvanized iron or steel wire	978	1,241	1,681
Barbed wire and woven wire fencing	1,630	1,051	1,848
Woven wire screen cloth	47	49	84
Wire rope	180	74	270
Insulated iron or steel wire and cable	22	4	74
Other wire and manufactures	340	267	466
Wire nails	1,161	618	612
Tacks	81	31	43
Other nails including staples	275	183	452
Bolts, machine screws, nuts, rivets and washers	284	261	693
Total, these 12 classifications	8,776	6,407	11,060

Imports of iron and steel wire and wire products into the United States
(In gross tons)

Concrete reinforcement and other bars	6,645	4,577	7,230
Wire rods	662	624	684
Barbed wire	1,675	2,072	377
Round iron and steel wire	118	202	115
Telephone and telegraph wire	3	1	2
Flat wire and strip steel	96	39	41
Wire rope and strand	165	177	180
Other wire	24	23	35
Hoops and bands	4,348	4,374	1,777
Nails, tacks and staples	335	369	479
Bolts, nuts and rivets	5	92	37
Total, these 11 classifications	14,076	12,550	10,957

IN December increases in imports of interest occurred to the trade in merchant steel bars in amount 1,615 tons. The bulk of the merchant steel bars, 4,564 tons, came from Belgium and France, while Belgium, Germany and France led in the 4,348 ton trade in hoops and bands. Of the 2,301 tons of ingots, blooms, billets, etc., imported, 1,384 tons originated in Belgium and 761 tons in France, while of the 2,030 tons of concrete reinforcement bars 1,329 tons came from Belgium and 701 tons from Germany.

✦ ✦ ✦

IMPORTS of iron and steel products into the United States dropped to the low level of 25,812 gross tons in December—8,846 tons under the November trade and the smallest tonnage received in 1931 or for some years past. The year's trade, too, at 420,260 tons was the lowest for several years past and was 117,231 tons under that in 1930. Imports, therefore, averaged 35,021.7 tons per month of 1,152.4 tons per day during 1931.

✦ ✦ ✦

BELGIUM, with 9,238 tons, was easily the leading supplier of iron and steel products to the United States in December. Germany, with 7,873 tons, was second, its total including the 1,987 tons of shapes and the 1,468 tons of hoops noted above, as well as 1,360 tons of barbed wire. The French total of 4,344 tons included 1,548 tons of merchant steel bars, 998 tons of hoops and bands, and 930 tons of structural shapes, while the Canadian total of 1,266 tons comprised 680 tons of ferromanganese and 340 tons of scrap, and British total of 1,198 tons comprised 300 tons of hoops, 188 tons of wire rods, and 179 tons of ferromanganese.

✦ ✦ ✦

IMPORTS of fourdrinier and other paper making wire during December totaled 123,963 square feet with a value of $29,673. This was a decided increase over the November imports.

Of this total 53,342 square feet came from Austria, 838 square feet from Belgium, 11,980 square feet from France, 38,036 square feet from Germany, 18,221 square feet from Sweden and 1,546 square feet from Canada.

✦ ✦ ✦

EXPORTS in December increased only with the Far East and Africa, while the trade with Europe decreased. Canada as usual lead all others and included in the purchases were 10,032 tons of wire rods; Japan purchased 4,006 tons of scrap and 1021 tons of wire rods; Argentina purchased 560 tons of tin plate, while Brazil purchased 457 tons of barbed wire.

✦ ✦ ✦

FOR the year 1931 Canada was easily the leading export market for American iron and steel—its taking of 417,005 tons amounting to 43% of all shipments. Japan was our second market, its purchases including 15,755 tons of wire rods. In the export trade to the Philippine Islands, we find 3676 tons of wire nails and 433 tons of tin plate. The United Kingdom took 12,500 tons of steel bars while Argentina purchased 3153 tons of galvanized wire.

✦ ✦ ✦

THE year was marked by a world-wide curtailment of steel purchases, coupled with a distinct trend on the part of many foreign purchasers to buy for price rather than for quality.

"NEP" Inhibitor

Established for 20 years.

Each pickling operation is a distinct problem and requires a special Inhibitor for that problem.

We supply Inhibitors to most of the Wire Mills in the United States and Canada.

We have been successful for 20 years.

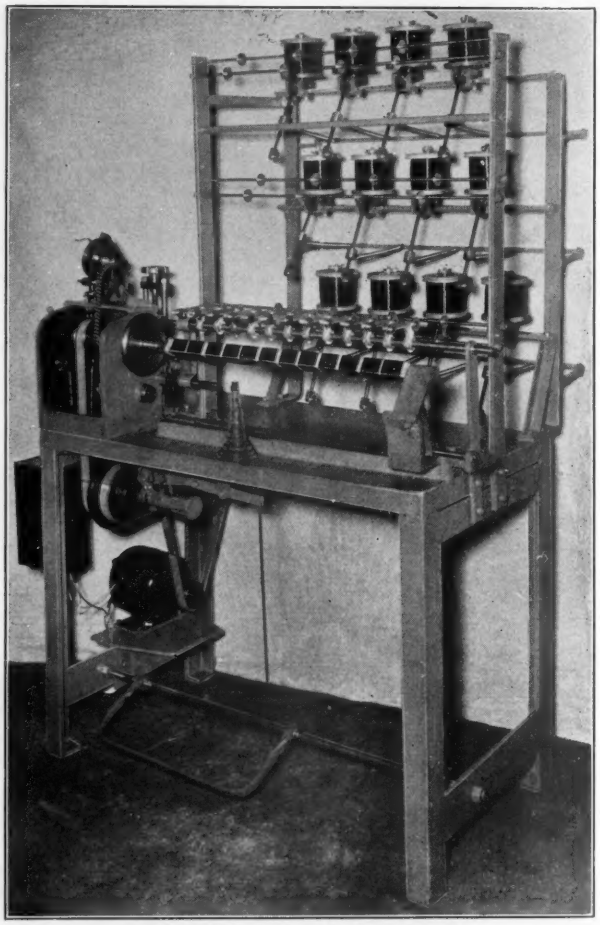
Four Good Inhibitors.

The
Wm. M. Parkin Company

Chemical Engineers to the Steel Industry.

PITTSBURGH, PA.

Rod, Wire, Cable, Strip and Tube Machinery



MULTIPLE COIL WINDER
WITH AUTOMATIC STOP COUNTER

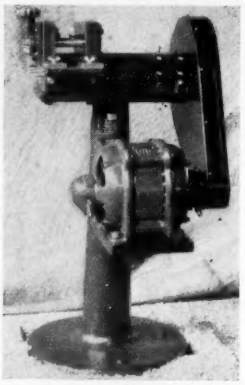
WE BUILD

Chain Draw Benches—Multiple Coil Winders.
Flat Wire Rolling Mills—Rod Pointers.
Hollow Wire Straighteners and Equipment.
Multiple Strand Bright Annealing Units.
Stranders to Customers' Specifications.
Reelers and Spoolers for all sizes of Wire and Cable.
Reelers and Spoolers for Tinning, Galvanizing, Patenting and Annealing.

Frederick M. Conran
Designer and Builder of Special Machinery
107 Colden St., Newark, N. J.

Roll Strip Straightening Machine

A NEW 11-Roll Strip Straightening Machine (No. 52 Series) has been added to their straightener line by the **H. J. Ruesch Machine Company**, 409 Mulberry Street, Newark, New Jersey. This machine will flat straighten .005 x ⅛ to .050 x 3″, and edge straighten up to .015 x 1″ thermostatic metal, brass and steel at the rate of 150 feet per minute.



Roll Strip Straightening Machine.

This Straightener has independent roll and pinion housings, which allows a greater adjustment on the rolls. The hardened and ground alloy steel rolls are driven from cut spur gears through special flexible couplings. The five upper rolls are equipped with a wiping attachment, and their bearings are mounted in one-piece C. I. boxes which are adjusted vertically at the entering and leaving end by means of a handwheel through a worm and wormwheel. The six lower roll bearings are fixed in the roll housing and have no adjustment. On the entering end, the machine is equipped with a guide table, which can be adjusted to accommodate the width of stock being straightened. On the rear of the machine, mounted on a slide, is a hardened and ground vertical roller which acts as an edge straightener. All gears and couplings are completely enclosed for safety and the bearings, which are bronzed bushed, are lubricated by the alemite system. The drive of the machine is through a chain from a ¾ H. P. motor mounted on a bracket cast integral with the column. This machine can be built in any size desired by the user.

New Method of Wire Identification Evolved

THE annual report of the Government Analyst of Ceylon calls attention to the fact that in the past many cases have been initiated in the courts charging various persons with the theft of Government copper telephone and telegraph wire. Most of these have been dismissed on account of the difficulty of proving the identity of the seized wire with Government samples, in view of the defence that the wire was quite legitimately purchased from local importers.

"We were consulted on this subject," says the Government Analyst, "and, by means of the Féry quartz spectroscope we were able, in a recent case, to demonstrate quite conclusively that the seized sample contained traces of certain ingredients which were present in Government wire, but not in any other samples obtained locally. This evidence is obtained very rapidly by a photographic process, and can be demonstrated by prints, showing that the finding is not a matter of opinion, but one of fact."

✦ ✦ ✦

Wire Rod and Pig Iron Rate Reductions

Iron or steel wire rods unfinished which can be transported in open top cars received a rate cut from the New Haven Railroad so that rates would be the same on the particular hauls in both directions. Rates are to Worcester from Bridgport $2.35, Hartford $2.27, Branford, Conn., $2.77, Wollaston, Mass., $2.10. These are reductions of 30 to 55c.

✦ ✦ ✦

The stock and equipment of the Smith & Egge Manufacturing Company of Bridgeport, which for many years constructed locks and keys for the United States government, has been sold to the **Turner & Seymour Manufacturing Company** of Torrington. The business was originally established by the late Friend W. Smith and Frederick Egge.

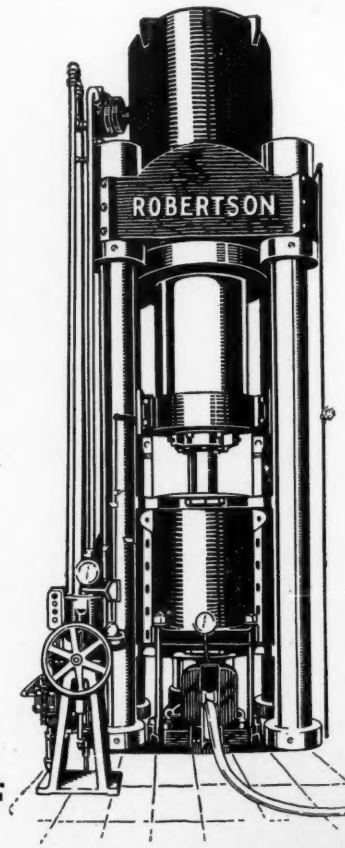
The True Pioneer
is always Trail-breaking!

The ambitious spirit that sought new trade routes to India, and discovered America,—that urged our forbears westward—is alive today. The true pioneer is always trail-breaking, in Industry, Science, Commerce, Manufacturing. . . .

John Robertson invented the Lead-encasing Die-block in 1885—the true forerunner of the modern Lead-encasing Press for wire, cables, rods, rubber hose. And Robertson has pioneered the field ever since, until now Robertson Lead Presses and allied equipment is used throughout the United States and fifteen foreign countries. Robertson Lead Presses are modern; they meet the most exacting demands. WRITE FOR ROBERTSON BULLETINS.

John ROBERTSON CO. INC. Pioneers-Since 1858

125-137 Water Street Brooklyn, N. Y.



Note: Robertson makes all types of lead-encasing machinery required by rubber hose and electrical cable makers: Extrusion Presses, Hydraulic Pumps, Melting Furnaces and Pots, Dies and Cores, also Lead Sheath Stripping Machines, and Hydro-pneumatic Accumulators.

Robertson lead encasing equipment is virtually a standard thing here and abroad, where in many cases it is used exclusively.

FLAT WIRE STRAIGHTENING AND CUTTING MACHINES

SHUSTER Machines take the flat wire from the coil, straighten it both flatwise and edgewise, and cut it to accurate lengths, at high speed.

Up to the minute machines, turning out a tremendous amount of work every day and standing up to it for years.

Whether you straighten Flat or Round Wire, Hexagon, or Square stock there is a SHUSTER MACHINE to take care of it.

The F. B. Shuster Company, New Haven, Conn.

Straightener Specialists Since 1866

"M G 7" Alloy

Messrs. James Booth & Company, are introducing a new light alloy known as "M G 7" in England. It is composed mainly of aluminum in combination with magnesium and manganese. Its specific gravity is only 2.63 whilst its mechanical properties ar similar to those called for by the B.E.S.A. specifications for "duralumin." Official specifications for the new alloy are under preparation and, it is expected, will be issued shortly. It is protected by patents.

"MG7" is highly resistant to corrosion and is claimed superior in this respect to any of the alloys of aluminum now available, particularly in circumstances where intercrystalline corrosion is to be feared. It can be produced in all the usual wrought forms such as sheets, tubes, bars, sections, forgings, drop forgings, wire, rivets, etc., etc., and no heat-treatment is necessary in order to produce the maximum strength values.

The alloy can be softened by annealing and in the annealed condition can be readily pressed, spun and forged. The following particulars of some of its mechanical and forging properties will be of interest:

Specific gracity, 2.63.

Annealing temperature, 380° C.

Forging temperature, 400 to 420° C.

Fatigue range, ±9.5 to ±10.25 tons sq. in.

Brinnell hardness, 90 to 115.

Izod impact value, 17 ft. lbs.

✦ ✦ ✦

IN the December issue of WIRE AND WIRE PRODUCTS, an article was published regarding the installation of wire rope in the new Glasgow subway. Inadvertently, no mention was made of the fact that British Ropes, Ltd., of London, England, had supplied many of these ropes. This is to advise that they furnished a large amount of them.

1931 Census of Manufactures

THE Census Bureau is now mailing its 1931 Census of Manufactures questionnaires to all manufacturers, with an urgent request that they be filled out and returned promptly. The value of manufactures statistics is dependent largely upon their timeliness, which in turn, is dependent upon the promptness of the manufacturers in returning the reports.

Information given on the questionnaires should relate preferably to the calendar year 1931; but if more convenient to the manufacturer it can cover a business or fiscal year ending within the period from April 1, 1931 to March 31, 1932. In either case, however, it should cover a full year's operations, unless the plant was newly organized or went out of business within the year.

The 1931 questionnaire is considerably smaller than the one used for the 1929 canvass. This is due to the fact that the 1931 census is one of the regular biennial series and does not fall within the decennial series (as did the census for 1929, when the questionnaires were expanded considerably).

The major items covered by the 1931 questionnaires are only four in number, namely:

Wage earners, employed, by months.

Wages paid.

Cost of materials, fuel, and purchased electric energy.

Products by quantity and value.

"Safety Practices Increase Rod Mill Efficiency"

By

R. H. Ferguson

Safety Engineer

National Safety Council

Will Be Concluded in the April Issue of Wire and Wire Products

WANTED

Bull Block for drawing steel wire up to ½" diameter, 22" to 26" block diameter.

Box 150, WIRE AND WIRE PRODUCTS

551 Fifth Ave., New York, N. Y.

Wire Questions and Answers

(*Continued from page 87*)

Up to now the lubricant manufacturers and the die manufacturers have seemed to go their own way without much actual contact and it will be very interesting to hear from other manufacturers of both dies and lubricants as well as hear what the users and proponents of wet drawing have to say on the subject.

I am not sure that this covers fully the questions in the mind of Mr. Woodford, but I will be very glad to discuss it further with him or any one else who is interested.

Very truly yours,
R. T. KLINE.

✦ ✦ ✦

Editor's Note: The question of lubrication is one of great interest to every man engaged in the drawing of wire and production of rods and tubes. The points brought out in the correspondence presented in Question Number 1211 would appear to be of sufficient interest to warrant the close attention of all members of the Wire Association.

Discussion is invited, and criticism and comment on the ideas presented above in answer to this question will be greatly appreciated.

The name of the writer will be omitted from the published replies if it is so desired.

✦ ✦ ✦

THE division of simplified practice of the Bureau of Standards has asked producers, distributors, and users of concrete reinforcement to consider a new draft of the simplified practice recommendation covering steel spiral rods. The proposed new edition includes the same sizes of rods as were listed in the original draft approved by the industry in January 1926. The representatives of the industry, in preparing the new edition, have included a detailed table to facilitate the use of the standard sizes by specifying authorities. This, it is believed, will enhance the value of the recommendation. The proposed new draft is to be effective upon announcement by the division of simplified practice that the various elements of the industry have recorded the necessary approval.

Metal Spools for Wire Drawing

Metal Spools for Annealing

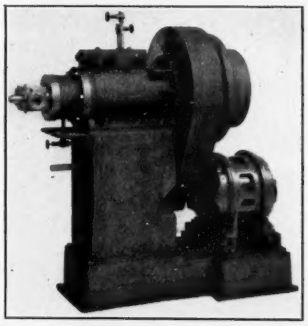
Metal Bound Spools for Shipping

Metal Bound Reels for Shipping

Hubbard Spool Co.

1620-32 Carroll Avenue
Chicago

JOHNSON SUPER PRODUCTION TUBING & STRAINING MACHINE



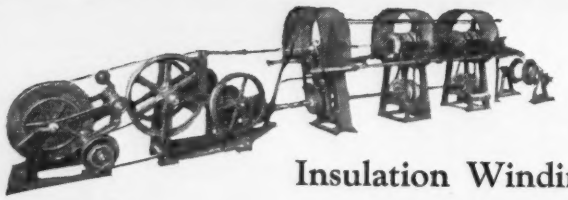
Its performance upholds all claims of efficiency with wide margins. Its present production speed is only limited by panning or reeling efficiency.
Its production cost reducing elements insure unfailing measures of fortification against excessive production costs.
Bulletins will be sent on request, with all other information requested to cover your requirements.

CORONE WIRE INSULATORS, INC.
Sole Distributors under the Johnson Patents.
Putnam, Conn. U. S. A.

BRITISH MARKET
GLASGOW, SCOTLAND
A Prominent Firm in Wire and Wire Products Industry
(Fine Drawing and Wire Weaving)

Can undertake to manufacture for the British Market under License or otherwise.
Any light engineering proprietary article, or other proposition, will be considered.
Energetic and progressive management
Highest commercial and financial reputation
Ample space and premises available

BOX 500, WIRE AND WIRE PRODUCTS
551 Fifth Avenue, New York, N. Y.



HIGH SPEED BALL-BEARING

Insulation Winding Machine

for applying two tapes from concentric rolls and a cotton binder. Machine has automatic stops for broken tapes or exhausted rolls of tape. Can be built for any number of tapes.

EST. 1855 AIMCo INC. 1918
"American" INSULATING MACHINERY COMPANY
REG. U.S. PAT. OFF.
517 Huntingdon St.
PHILADELPHIA PENNSYLVANIA U.S.A.

ONE MAN TYPE TAKE UPS

Designed to handle reels from 60" diam. up to 120" diam.

NEW ENGLAND BUTT COMPANY

Office and Factory
304 Pearl St., Providence, R. I.

Western Office
20 North Wacker Drive, Chicago, Ill.

We build a complete line of Stranding Machines, Cabling Machines, Closing Machines, Rubber Strip Covering Machines, Measuring Machines, and Other Allied Machines for the Wire Trade.

OUR WIRE MACHINERY CATALOGUE SENT ON REQUEST

RUESCH

SPECIAL MACHINERY DESIGNED AND BUILT FOR WIRE, TUBE AND BRASS MILLS

H. J. RUESCH MACHINE CO.
409 MULBERRY ST. NEWARK, N. J.

MACHINERY for the Manufacture of Strips, Sheets, Tubes, Rods, Wire and Cable

▲ ▲ ▲

SPECIAL MACHINERY

▲ ▲ ▲

The Torrington Mfg. Co.
Torrington - Conn, U.S.A.
44 Franklin St.

Research in Pickling and Hot Galvanizing

Stahl und Eisen for Dec. 24, 1931, carries an extended summary of a research conducted by Messrs. van den Loo, Pűngel and Schulz in the influence on properties of steel wire of pickling and hot galvanizing. An attempt was made to determine separately as well as in combination the influences of pickling, preheating and zinc coating on tensile strength, elongation, bending and torsion, the materials tested being wires of varying sizes in .43, .63 and .73 carbon steel drawn from patented stock. Each determination was made in wire reduced 50% and wire reduced 80% in sectional area from the patenting point. Sulphuric as well as muriatic acid was investigated, preheating was studied in varying temperatures and durations, and both temperature and length of immersion in the zinc were varied.

✦ ✦ ✦

THE author's conclusions are summed up as follows: Muriatic acid is distinctly better than sulphuric, as its effects are more easily removed in the course of subsequent operations (preheating and galvanizing.) If sulphuric is used it should run not less than 20% (18° Baumé) and as hot as possible, and the galvanizing of wires of only moderate total reduction should be avoided.

✦ ✦ ✦

FOR good bending and torsion it is important that the wire should have been reduced 80 to 85% in area, and the higher carbons give more satisfaction in this respect. The wires which have had less reduction lose less in tensile but this is offset by the more satisfactory behavior of the harder drawn stock with respect to bending and torsion. With a total reduction of 80 to 85% the bending test will drop 20% and the torsion 10 to 20% below that of the bare wire, while with less reduction, irrespective of the carbon content, the values will fall off 40 to 50% in bending and 60 to 80% in torsion.

FOR the same results, as well as in the interest of a better resistance to corrosion it is recommended that the zinc temperature be rather lower and the speed rather higher than current practice.

✦ ✦ ✦

Seamless Monel Metal Tubing and Spring Wire

TWO new products have been developed by the Huntington Works of The International Nickel Company.

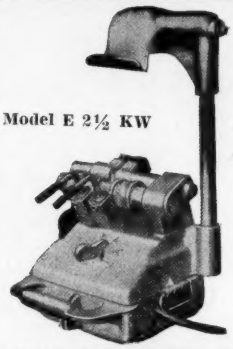
The first of these is cold-drawn seamless Monel Metal tubing which is now being produced in sizes ranging from ¼″ o. d. to 2¼″ o. d. with a maximum wall thickness of .180″ and minimum of .035″. Larger sizes are available upon application.

It overcomes inherent difficulties in coiling welded tubing and enables the expanding of tubes into headers and the like with less difficulty. It is also suitable for a large number of uses where the corrosion resistance and other properties of Monel Metal are desired, especially in handling certain corrisive agents like sulphuric acid for which pure nickel is not suited.

✦ ✦ ✦

THE second product is Monel Metal spring wire in diameters ranging from .035 to .310 of an inch. While wire of this type previously has been manufactured within certain limitations elsewhere, that produced at Huntington meets more rigid specifications as to physical characteristics and consistency of properties. Tensile strengths have a minimum range of from 140,000 pounds per square inch for the .310″ diameter to 155,000 pounds for the .035″.

As a spring material this wire is exceptionally suitable because it has a comparatively high torsional modulus in addition to its tensile strength, offers corrosion resistance under a wide variety of conditions, and retains its physical properties at relatively high temperatures.


Model E 2½ KW

Welds wires from No. 20 to No. 4

Wire and Rod Welding

Better -- Faster -- at Less Cost

Spot Welders—Butt Welders

Various Models With Capacities From No. 20 wire to ⅝″ Rods—For All Metals—

Write for full details of our various models, and tell us something of your needs.

MICRO PRODUCTS COMPANY

140 Industrial St. Dept. 531 Peoria, Ill.

European Office, H. A. Schlatter & Co.
Zurich, 1, Limmatquai 32, Switzerland.

ROCKWELL

FURNACES

ELECTRIC *and* FUEL

For Ferrous and Non-Ferrous Wire Products

Complete heating equipment for strand annealing, billet heating and intermediate operations.
Bright annealing furnaces for ferrous and non-ferrous metals.

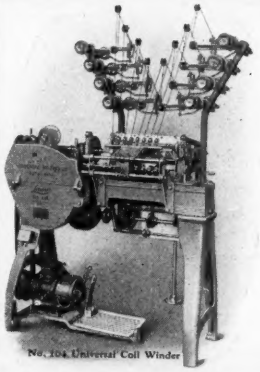
"Furnace and Fuel to Suit Conditions"

ELECTRICITY—GAS—OIL—COAL

W. S. ROCKWELL COMPANY

Industrial Heating Equipment

1885-1 50 Church Street (Hudson Terminal Building) New York


No. 104 Universal Coil Winder

An interesting development for more efficiently producing paper-insulated coils. Paper is injected automatically without attention from the operator. Fully adjustable for a wide range of coil and wire sizes.

Six other machine types complete a line of coil winders answering any possible manufacturing need.

Catalog is available on request.

UNIVERSAL WINDING COMPANY
BOSTON

LEESONA

WIRE DRAWING Machinery and Equipment

Rod Frames—16″ Frames
8″ Frames—Take-Up Frames
Wire Pointers—Puller Tongs
General Castings for Wire Mill Use
Circulars on Request.

E. J. SCUDDER FOUNDRY & MACHINE CO. TRENTON N. J.

DIAMOND DIES

When purchasing
Diamond Dies
avail yourself of the
forty years' experience
of the famous

P-H-I-L-I-P-S W-O-R-K-S

Any inquiries will be dealt with promptly

RAW MATERIAL DEPARTMENT

PHILIPS LAMP WORKS

EINDHOVEN **HOLLAND**

Wire Drawing Diamond Dies

COCHAUD
WIRE DIE CORPORATION
300 W. 56th ST., NEW YORK
Tel. Col. 5-1340

BRAND
"B"
Wire Drawing Soap Powder

Made from high titre Palm Oil stock for high carbon drawing.
Proven by test to lower costs and improve efficiency.

Manufactured exclusively for wire drawing by

THE J. T. ROBERTSON CO., INC.
SYRACUSE, N. Y.
Wire drawing soap specialists since 1893.

New Flux Simplifies Wire Galvanizing

IN all wire galvanizing the desirability of thoroughly clean wire and a chemically clean entrance bath surface is well understood. Heretofore this has in many cases been a practical impossibility in view of the undesirable and expensive characteristics of sal ammoniac and zinc ammonium chloride.

To meet this condition a new flux for galvanizing wire has been developed. It is a product resulting from careful research and it is claimed has proven itself as having many outstanding advantages in all commercial applications. With the application of this Flux, the conditions mentioned have been eliminated and not only far better results obtained on the wire from the standpoint of bonding and appearance, but also a very acceptable economy.

The Flux is dissolved in water to prepare a bath that will vary

DIE RECUTTING

ACCURATE WORK **FINE FINISH**

75 cents per thousandth—.007 and larger
NO DIE RECUT FOR LESS

Special prices on large lots or on dies less than .007.

WILLIAM HADDOW
17 Eastern Ave. **Ossining, N. Y.**

The Waterbury Wire Die Co.

Diamond, Composition and CHILLED IRON DIES
Waterbury, Conn.

from about 6° Baume to 30° Baume depending on the product and shop conditions and technique. This bath operates best when heated to about 150° F and the straight wire fabric is run directly from the bath to the kettle without any other treatment. In the case of straight wire galvanizing this procedure has lead to the use of less than half the amount of flux required when the former zinc salt was used in a solution. Economy in use of the Flux, however, is only one of its advantages.

There is no spitting, no carry through to spoil the wipe and the condition of the wire is much cleaner, smoother and of greater brilliancy. Production speeds have been increased on some types of wire fabric. It maintains at all times a sparklingly clean entrance surface with absence of ashes and distinctly superior bonding results.

The adoption of this Flux does not entail any expense in the straight wire operation over the neutral flux technique and in the woven wire field practically none. In such fields as woven wire, chain link fabric, hardware cloth and poultry netting as well as where the practice is that of additions by hand of sal ammoniac or zinc ammonium chloride the human element is eliminated and a constant and chemically exact addition to the flux cover is in effect.

While this Flux may be used with distinct advantages as a solid material to produce a puffy volatile flux, it is stated that truly startling results are obtained when it is used as a preflux bath. This technique is simple and results in the elimination of the use of muriatic acid with its dross producing characteristics or other liquid flux wash as well as the sal ammoniac on the top of the kettle.

The Flux, whether used in cold or liquid form produces a desirable type of flux froth on the kettle and does not require the addition of such frothing agents as glycerine, bran, etc.

This product has been created under the supervision of W. H. Spowers, Jr. Consulting Galvanizing Engineer.

VIANNEY

DIAMOND DIES

100 FIFTH AVE · NEW YORK

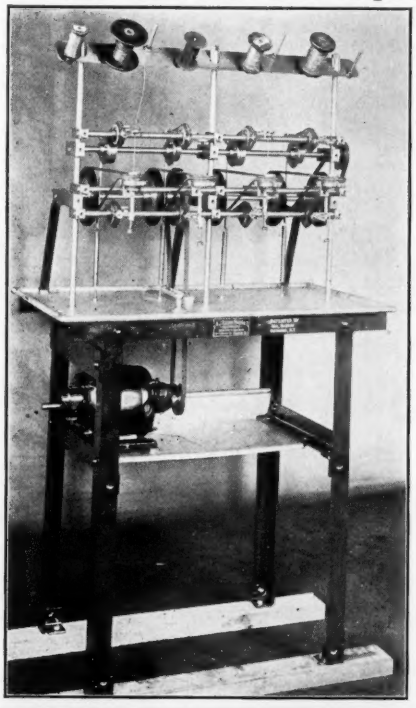
BALLOFFET

The Quality Diamond Dies

1870 1932

BALLOFFET DIAMOND WIRE DIES CO. INC.,
13-15 East 22nd Street, New York City
Factories in France: Lagnieu-Cluses-Trevoux

The Haddow Die Re-Cutting and Polishing Machine will lower your die re-cutting cost to a fraction of present costs



Why do you continue to pay a die cutter and pay for diamond dust to remove a large percentage of your diamond from your dies? Diamond that has done no work—when, by the use of the Haddow Die Recutting Machine you may use practically all your diamonds to draw wire, especially in the small sizes.

ONE MONTH'S SHOP PRODUCTION

Total number of dies cut —1047

Total number of hours required—182.5

Average number of dies per hour—5.73

Number of operators—1

With only one man—This machine will do the work now requiring four to six men in less time and at lower cost.

4 HEAD MACHINE—Also Made in 6-Head size (With 2 Heads for Heavier Dies).

WILLIAM HADDOW
17 Eastern Ave.
Ossining, N. Y.

BUYERS' GUIDE

For more complete information, consult the annual Directory, Index & Buyers' Guide.

ANNEALING FURNACES
See Furnaces—Various Headings

ANNEALING POTS
Scudder, E. J., Fdry & Machine Co., Trenton, N. J.

ARMORING EQUIPMENT
Amer. Insulating Mach'y Co., Phila., Pa.
New England Butt Co., Providence, R. I.
John Robertson Co., Brooklyn, N. Y.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.
Watson Machine Co., Paterson, N. J.

BAKERS
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

BOBBINS
Mossberg Pressed Steel Co., Attleboro, Mass.

BRAIDER CARRIERS
Mossberg Pressed Steel Co., Attleboro, Mass.

CASTINGS—Wire Mill
E. J. Scudder Foundry & Machine Co., Trenton, N. J.

CLEANING & PICKLING EQUIPMENT
Vaughn Machinery Co., Cuyahoga Falls, O.

COILERS—Sheet and Wire
H. J. Ruesch Machine Co., Newark, N. J.

COMPOUNDS—Insulating
Corone Wire Insulators, Inc., Putnam, Conn.

COPHOLDERS
Mossberg Pressed Steel Corp., Attleboro, Mass.

CRANES—Wire Mill
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

DIES—Chilled Iron
Waterbury Wire Die Co., Waterbury, Ct.

DIES—Composition
Vianney Wire Die Works, New York, N. Y.

DIES—Diamond
Balloffet Diamond Wire Dies Co., Inc., N. Y. C.
Cochaud Wire Die Co., New York.
Driver-Harris Co., Harrison, N. J.
Master Wire Die Corp., New York, N. Y.
Union Wire Die Corp., New York, N. Y.
Vianney Wire Die Works, New York.
Waterbury Wire Die Co., Waterbury, Ct.

DIES—Lead Extrusion
John Robertson Co., Brooklyn, N. Y.

DIES—Repairs & Re-Cutting
Balloffet Diamond Wire Dies Co., Inc., N. Y. C.
Cochaud Wire Die Corp., New York.
Driver-Harris Co., Harrison, N. J.
William Haddow, Ossining, N. Y.
Vianney Wire Die Wks., N. Y.

DIES—Recutting and Repolishing Machine
Wm. Haddow, Ossining, N. Y.
Vianney Wire Die Works, New York, N. Y.

DIES—Rod and Tube Drawing
Carboloy Co., Inc., Newark, N. J.
Master Wire Die Corp., N. Y.
Union Wire Die Corp., N. Y.
Vianney Wire Die Works, New York, N. Y.

DIES—Tantalum Carbide
Diamond Die Co. of America, New York, N. Y.
Vianney Wire Die Works, New York, N. Y.

DIES—Tungsten Carbide
Carboloy Co., Inc., Newark, N. J.
Driver-Harris Co., Harrison, N. J.
Master Wire Die Corp., New York, N. Y.
Union Wire Die Corp., New York, N. Y.
Vianney Wire Die Works, New York, N. Y.

DRAW BENCHES—
H. J. Ruesch Machine Co., Newark, N. J.
Scudder, E. J., Fdry & Machine Co., Trenton, N. J.
Torrington Mfg. Co., Torrington, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.
Waterbury-Farrel Fdry & Machine Co., Waterbury, Conn.

FURNACES—Annealing
W. S. Rockwell Co., New York, N. Y.
Surface Combustion Co., Toledo, O.

FURNACES—Automatic
W. S. Rockwell Co., New York, N. Y.
Surface Combustion Co., Toledo, O.

FURNACES—Bright Annealing
W. S. Rockwell Co., New York, N. Y.
Surface Combustion Co., Toledo, O.

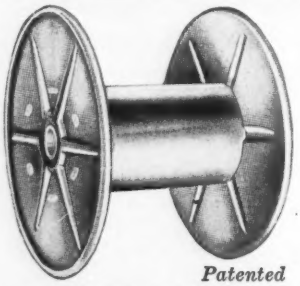
FURNACES—Electric
W. S. Rockwell Co., New York, N. Y.
Surface Combustion Co., Toledo, O.

FURNACES—Lead Melting
John Robertson Co., Brooklyn, N. Y.

FURNACES—Non-Oxidizing
W. S. Rockwell Co., New York, N. Y.
Surface Combustion Co., Toledo, O.

FURNACES—Wire
W. S. Rockwell Co., New York, N. Y.
Surface Combustion Co., Toledo, O.

GALVANIZING ENGINEER
W. H. Spowers, Jr., New York, N. Y.



Patented

MOSSBERG
Reels and Spools
Made of Pressed Steel

A complete line of reels and spools for every phase of manufacturing, handling and shipping. They are practically indestructible. Send for catalog of stock designs or for quotation on your own specifications.

Above: a curled flange, pressed steel spool for handling and shipping. Pressed-in radial ribs give added strength. Barrels are provided with our patented rib filler.

MOSSBERG
Pressed Steel Corp.
Attleboro, Mass., U. S. A.
Makers of "Mosspeed" Braider Carriers.

Announcing

The Establishment of a Translation Bureau

BY

Wire and Wire Products

This translation service is under the supervision of trained engineers familiar with the rod, wire and strip industry.

All translations will be technically correct.

For further information address

TRANSLATION BUREAU

WIRE AND WIRE PRODUCTS

551 Fifth Ave., New York, N. Y.

BUYERS' GUIDE, Continued

INHIBITORS—
Wm. M. Parkin & Co., Pittsburgh, Pa.

INSULATING COMPOUNDS
Corone Wire Insulators, Inc., Putnam, Conn.

LATHES—Die Reaming
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.
The Waterbury Farrel Foundry & Machine Co., Waterbury, Conn.

LIME—Pulverized
Amer. Lime & Stone Co., Bellefonte, Pa.

LUBRICANTS—Wire Drawing
Oak Chemical Co., Bechtelsville, Pa.
J. T. Robertson Co., Syracuse, N. Y.

MACHINE—Die Re-cutting and Polishing
Wm. Haddow, Ossining, N. Y.

MACHINERY—Armoring (Cable, Wire Hose)
American Insulating Mach'y Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.
Watson Machine Co., Paterson, N. J.

MACHINERY—Braiding
Mossberg Pressed Steel Corp., Attleboro, Mass.
New England Butt. Co., Providence, R. 1.

MACHINERY—Bunching
Amer. Insulating Mach'y Co., Phila., Pa.
Haskell-Dawes Machine Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Watson Machine Co., Paterson, N. J.

MACHINERY—Bundling
Sleeper & Hartley, Inc., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.
Watson Machine Co., Paterson, N. J.

MACHINERY—Cable, Electric
Fred'k M. Conran, Newark, N. J.
New England Butt Co., Providence, R. I.
Torrington Mfg. Co., Torrington, Conn.
Watson Machine Company, Paterson, N. J.

MACHINERY—Chain Making
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Closing
Haskell-Dawes Mach. Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Torrington Mfg. Co., Torrington, Conn.
Watson Machine Co., Paterson, N. J.

MACHINERY—Paper Insulated Coils
Universal Winding Co., Providence, R. I.

MACHINERY—Coil Winding
Amer. Insulating Mach'y Co., Phila., Pa.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.
Universal Winding Co., Providence, R. I.

MACHINERY—Coiling
Broden Const. Co., Cleveland, O.
Haskell-Dawes Mach. Co., Phila., Pa.
H. J. Ruesch Machine Co., Newark, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.
Watson Machine Co., Paterson, N. J.

MACHINERY—Copper Wire Drawing and Rolling
H. J. Ruesch Machine Co., Newark, N. J.
Torrington Mfg. Co., Torrington, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.
Waterbury-Farrell Fdry & Machine Co., Waterbury, Conn.

MACHINERY—Cutting
American Insulating Mach'y Co., Phila., Pa.
F. B. Shuster Co., New Haven, Conn.
Sleeper & Hartley, Worcester, Mass.

MACHINERY—Enameling
American Insulating Mach'y Co., Phila., Pa.

MACHINERY—Extruding
John Robertson Co., Brooklyn, N. Y.
Watson Machine Co., Paterson, N. J.

MACHINERY—Flat Wire
Fred'k M. Conran, Newark, N. J.
H. J. Ruesch Machine Co., Newark, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.

MACHINERY—Forming
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.

MACHINERY—Galvanizing Wire
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Gang Winders
H. J. Ruesch Machine Co., Newark, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Insulating
American Insulating Machinery Co., Phila.
Corone Wire Insulators, Inc., Putnam, Conn.
New England Butt Co., Providence, R. I.
Watson Machine Co., Paterson, N. J.

MACHINERY—Lead Encasing Presses, etc.
John Robertson Co., Brooklyn, N. Y.

MACHINERY—Lead Stripping
John Robertson Co., Brooklyn, N. Y.
Watson Machine Co., Paterson, N. J.

MACHINERY—Lock Washer
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Magnet Wire
American Insulating Mach'y Co., Phila., Pa.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.

MACHINERY—Measuring Wire & Cable
New England Butt. Co., Providence, R. I.
Watson Machine Co., Paterson, N. J.

MACHINERY—Nail
Sleeper & Hartley, Inc., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Panning
American Insulating Machinery Co., Phila.

MACHINERY—Pointing
Fred'k M. Conran, Newark, N. J.
Morgan Construction Co., Worcester, Mass.
H. J. Ruesch Machine Co., Newark, N. J.
E. J. Scudder Foundry & Machine Co., Trenton, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.
The Waterbury Farrell Foundry & Machine Co., Waterbury, Conn.

MACHINERY—Rivet
Waterbury-Farrell Fdry & Machine Co.

MACHINERY—Rod
Fred'k M. Conran, Newark, N. J.
Morgan Const. Co., Worcester, Mass.
H. J. Ruesch Machine Co., Newark, N. J.
Torrington Mfg. Co., Torrington, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.
Waterbury-Farrell Fdry & Machine Co., Waterbury, Conn.

MACHINERY—Rubber Strip Covering
American Ins. Mach'y Co., Phila., Pa.
Corone Wire Insulators, Inc., Putnam, Conn.
New England Butt Co., Providence, R. I.
Watson Machine Co., Paterson, N. J.

MACHINERY—Rubber Tubing and Straining
Corone Wire Insulators, Inc., Putman, Conn.
Sleeper & Hartley, Inc., Worcester, Mass.
Watson Machine Co., Paterson, N. J.

MACHINERY—Screw Wire
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Special
Fred'k M. Conran, Newark, N. J.
H. J. Ruesch Machine Co., Newark, N. J.
E. J. Scudder Foundry and Machine Co., Trenton, N. J.
Torrington Mfg. Co., Torrington, Conn.
Sleeper & Hartley, Inc., Worcester, Mass.
Watson Machine Co., Paterson, N. J.

MACHINERY—Spooling
Fred'k M. Conran, Newark, N. J.
American Insulating Machinery Co., Phila.
Torrington Mfg. Co., Torrington, Conn.
Waterbury Farrel Foundry & Machine Co., Waterbury, Conn.
Watson Machine Co., Paterson, N. J.
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Spring Making
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Staple
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Straightening
H. J. Ruesch Machine Co., Newark, N. J.
F. B. Shuster, New Haven, Conn.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.

MACHINERY—Straightening Hollow Wire
Fred'k M. Conran, Newark, N. J.

MACHINERY—Stranding
American Insulating Mach'y Co., Phila Pa.
Fred'k M. Conran, Newark, N. J.
Haskell-Dawes Machine Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.
Watson Machine Co., Paterson, N. J.

Patents—Trade Marks

All cases submitted given personal attention by members of the firm. Information and booklet free.

Lancaster, Allwine & Rommel

PATENT LAW OFFICES

Suite 438, 815-15th St., N.W. Washington, D. C.

W. H. Spowers, Jr.
Consulting Engineer
551 Fifth Ave., N. Y. C.
Specializing in Galvanizing Plants Designed and Installed
Practical Engineering Advice
Vanderbilt 7395

Broden Construction Co.
Wire Mill and Cold Rolling Equipment
10255 Harvard Ave.
CLEVELAND, OHIO

BUYERS' GUIDE, Continued

MACHINERY—Strip Steel
Broden Const. Co., Cleveland, O.
Fred'k M. Conran, Newark, N. J.
H. J. Ruesch Machine Co., Newark, N. J.
Torrington Mfg. Co., Torrington, Conn.

MACHINERY—Swaging
H. J. Ruesch Machine Co., Newark, N. J.
Sleeper & Hartley, Worcester, Mass.
Waterbury-Farrell Foundry & Machine Co., Waterbury, Conn.

MACHINERY—Taping
Amer. Insulating Mach. Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Torrington Mfg. Co., Torrington, Conn.
Watson Machine Company, Paterson, N. J.

MACHINERY—Trolley Wire
Torrington Mfg. Co., Torrington, Conn.
Waterbury Farrel Foundry & Machine Co., Waterbury, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Tube Mill
Fred'k M. Conran, Newark, N. J.
H. J. Ruesch Machine Co., Newark, N. J.
Torrington Mfg. Co., Torrington, Conn.
Waterbury-Farrell Fdry. & Machine Co., Waterbury, Conn.

MACHINERY—Welding Wire
Micro Products Co., Peoria, Ill.
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Winding
American Insulating Mach'y Co., Phila., Pa.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.
Universal Winding Co., Providence, R. I.
Watson Machine Co., Paterson, N. J.

MACHINERY—Wire Drawing
American Insulating Machinery Co., Phila.
Broden Const. Co., Cleveland, Ohio.
Fred'k M. Conran, Newark, N. J.
Morgan Construction Co., Worcester, Mass.
H. J. Ruesch Machine Co., Newark, N. J.
E. J. Scudder Foundry & Machine Co., Trenton, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Manufacturing Co., Torrington, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.
Waterbury Farrell Foundry & Machine Co., Waterbury, Conn.

MACHINERY—Wire Rope
New England Butt Co., Providence, R. I.
Watson Machine Company, Paterson, N. J.

PACKING—Metallic Fibre
Hudson Wire Co., Ossining, N. Y.

POINTERS—Wire
Sleeper & Hartley, Inc., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

POTS—Lead Melting
John Robertson Co., Brooklyn, N. Y.

PRESSES—Lead Encasing
John Robertson Co., Brooklyn, N. Y.

PRESSES—Lead Extrusion
John Robertson Co., Brooklyn, N. Y.

PULLERS—Wire
E. J. Scudder Fdry. & Machine Co., Trenton, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.

PUMPS—Hydraulic
John Robertson Co., Brooklyn, N. Y.

REELS AND SPOOLS—All Kinds
R. B. Hayward Co., Chicago, Ill.
Hubbard Spool Co., Chicago, Ill.
Mossberg Pressed Steel Corp., Attleboro, Mass.

REEL AND TENSION STAND—
Sleeper & Hartley Inc., Worcester, Mass.

REEL CRUTCHES
R. B. Hayward Co., Chicago, Ill.
Watson Machine Co., Paterson, N. J.

ROLLING MILLS
Fred'k M. Conran, Newark, N. J.
Morgan Construction Co., Worcester, Mass.
H. J. Ruesch Machine Co., Newark, N. J.
Torrington Mfg. Co., Torrington, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.
Waterbury-Farrell Foundry & Machine Co., Waterbury, Conn.

SOAPS—Wire Drawing
J. T. Robertson Co., Syracuse, N. Y.

SPOOLS—Annealing—Detachable Head Handling—Wire Stitching
Mossberg Pressed Steel Corp., Attleboro, Mass.

TANKS—Compound
Watson Machine Co., Paterson, N. J.

TRUCKS
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

TUBE BENDERS AND FORMERS
H. J. Ruesch Machine Co., Newark, N. J.

VULCANIZERS
Watson Machine Co., Paterson, N. J.

VULCANIZING PANS
American Insulating Mach'y Co., Phila., Pa.
Mossberg Pressed Steel Corp., Attleboro, Mass.

WIRE—Various Kinds
Hudson Wire Co., Ossining, N. Y.
Seymour Mfg. Co., Seymour, Conn.
Winsted Insulated Wire Co., Winsted, Conn.

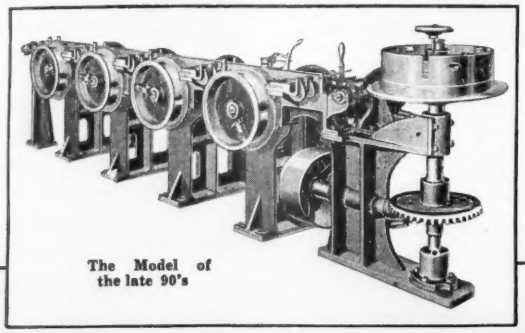
This is a carefully classified index of concerns who specialize in this industry and who advertise regularly in WIRE & WIRE PRODUCTS. Please mention WIRE when writing to these firms.

WATERBURY-FARREL TANDEMS

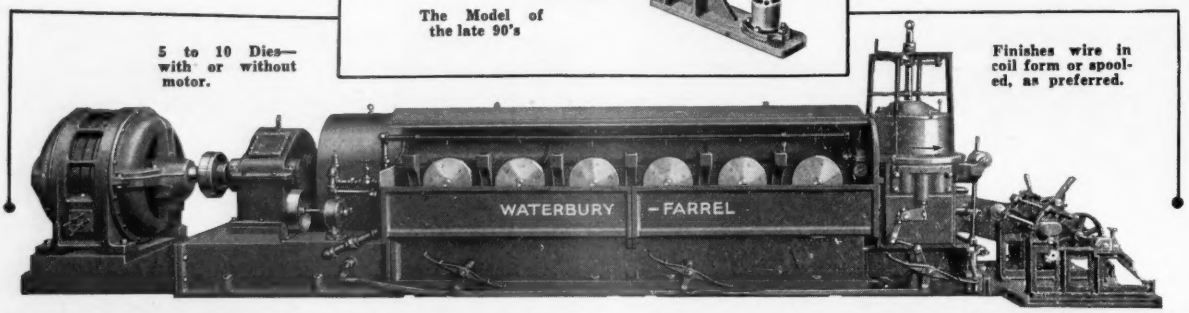
Three Decades Perfecting Continuous Wire Drawing Machines

We thought the old machines were pretty good in the old days (and they were) but times have changed. Today we offer not a better method nor a new principle, but—a far better machine that meets in eloquent fashion every demand of the present day—

High Speed
Low Operating Cost
Mechanical Efficiency



The Model of the late 90's



No. 1 Machine. Forced feed lubrication. Ball Bearings throughout. Starting size, 5/16" copper rod.

The Waterbury Farrel Foundry and Machine Company

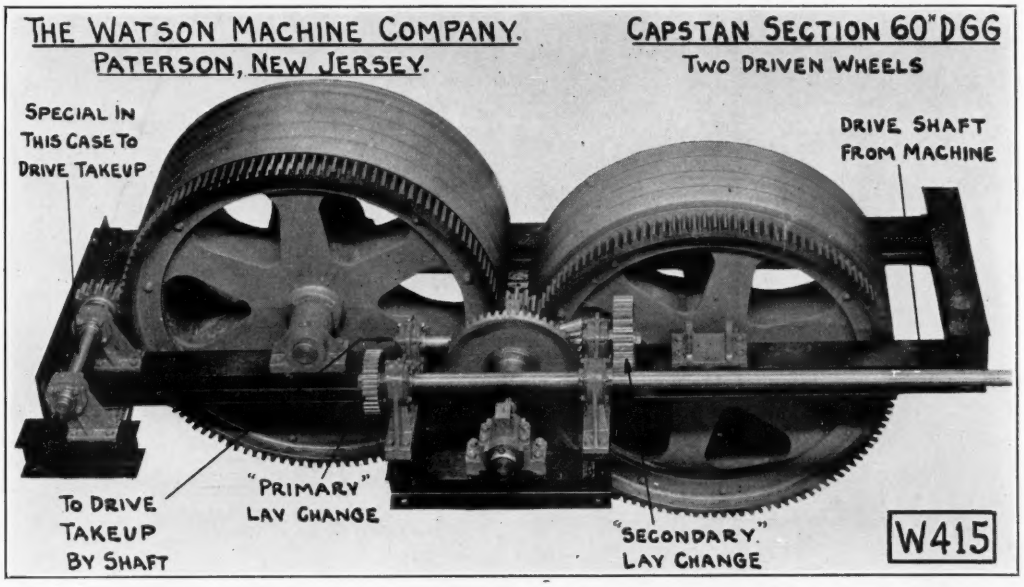
Home Office and Works: Waterbury, Connecticut.
Western Offices: 736 Bulkley Bldg., Cleveland, Ohio, and Daily News Bldg., Chicago, Ill.

THE WATSON MACHINE COMPANY

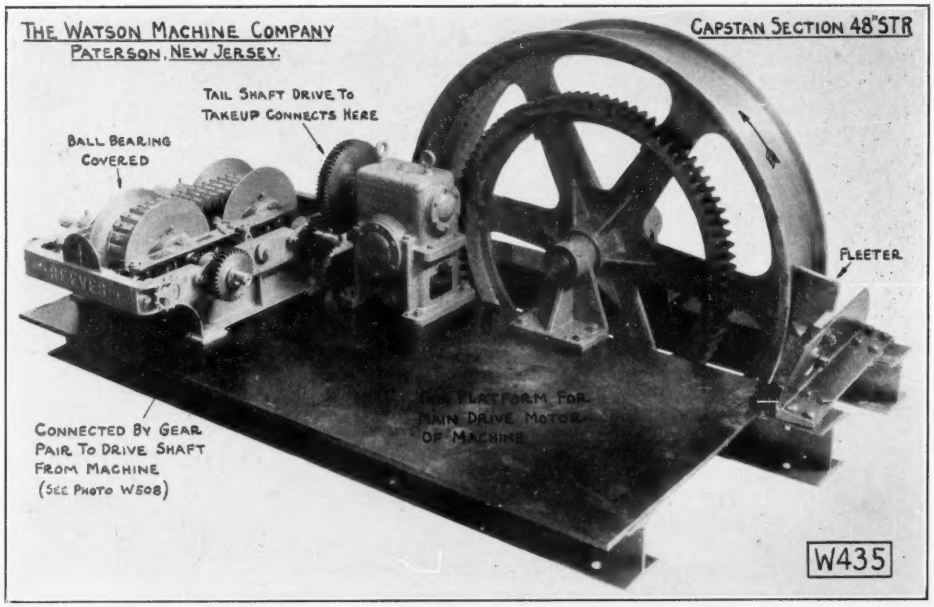
ESTABLISHED 1845

PATERSON, NEW JERSEY, U. S. A.

CAPSTAN SECTIONS (Double Grooved and Straight Tapered).



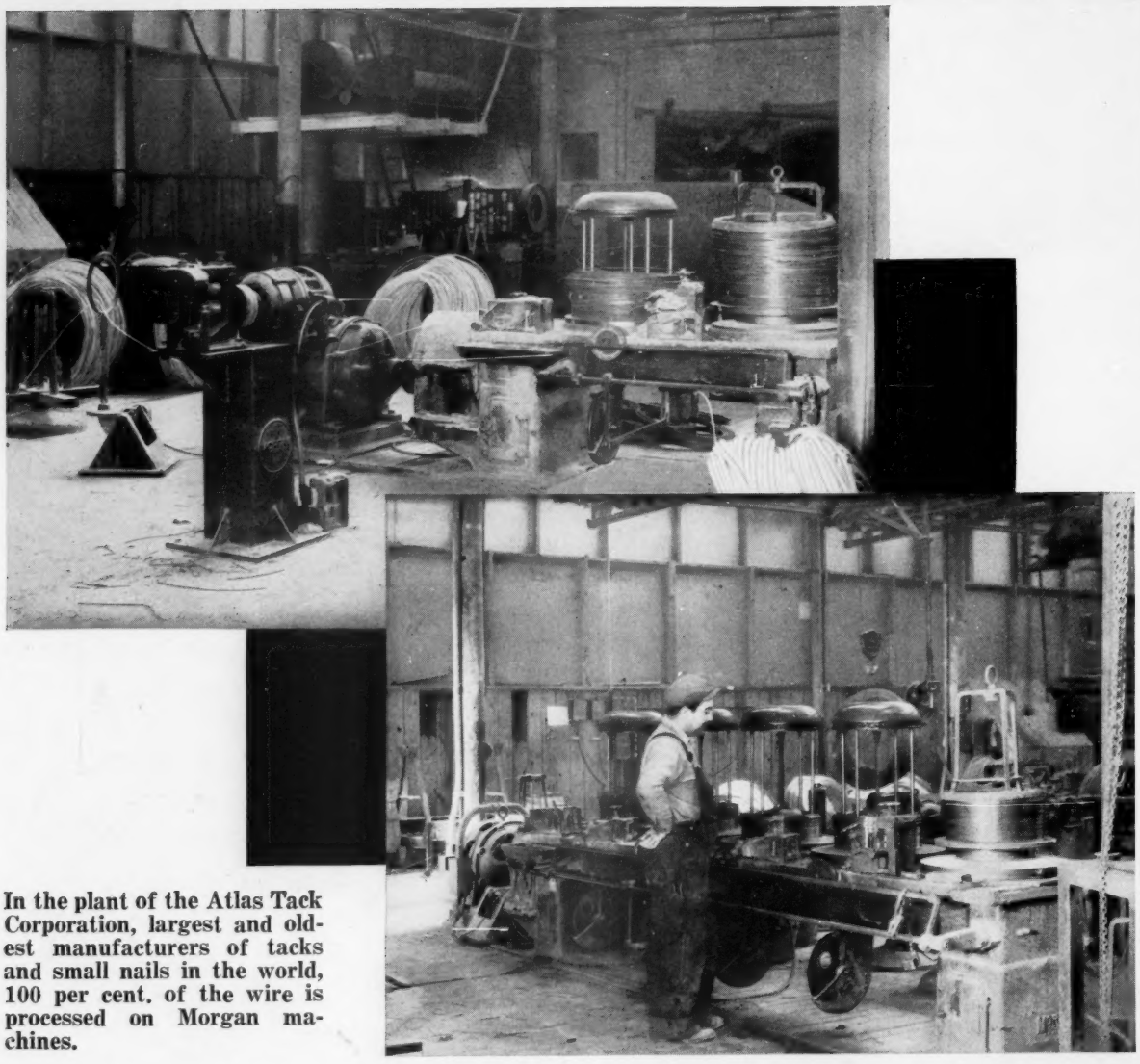
DOUBLE GROOVED CAPSTAN SECTIONS—Standard sizes are 15″, 20″, 28″, 36″ and 60″ with one or two driven wheels, with lay variation by gears or Reeves Transmission.


THE WATSON MACHINE COMPANY
PATERSON, NEW JERSEY.
CAPSTAN SECTION 48"STR
TAIL SHAFT DRIVE TO TAKEUP CONNECTS HERE
BALL BEARING COVERED
FLEETER
CONNECTED BY GEAR PAIR TO DRIVE SHAFT FROM MACHINE (SEE PHOTO W508)
W435

STRAIGHT TAPERED CAPSTAN SECTIONS—Standard sizes are 20″, 28″, 36″, 48″, 60″, 80″ and 118″, with lay variation by gears or Reeves Transmission.

Descriptive bulletins will be mailed on request.

ELECTRICAL WIRE and CABLE—WIRE ROPE and CORDAGE MACHINERY



In the plant of the Atlas Tack Corporation, largest and oldest manufacturers of tacks and small nails in the world, 100 per cent. of the wire is processed on Morgan machines.

MORGAN CONSTRUCTION COMPANY

WORCESTER, MASSACHUSETTS

MALMEDIE & COMPANY, Dusseldorf, Germany
Sole Licensee for Morgan-Connor Wire Machines in Europe

MORGAN
WORCESTER

ENGINEERS AND MANUFACTURERS

ROLLING MILLS GAS PRODUCERS WIRE MACHINERY
COMBUSTION CONTROLS